A Dissertation

entitled

A National Assessment of the Impact of the Institutes for Higher Education Academy Training of School Health Education Faculty

by

Amelia C. Huelskamp

Submitted to the Graduate Faculty as partial fulfillment of the requirements for the

Doctor of Philosophy Degree in

Health Education

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The University of Toledo
May 2016
An abstract of

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**Purpose.** The purpose of this study was to evaluate the impact of the Institutes for Higher Education (IHE) Academy, a professional conference intended to train school health education faculty in the use of online resources available through the Centers for Disease Control (CDC), and to facilitate the integration of these resources into school health teacher preparation programs.

**Methods.** This was a mixed methods study with two data collection phases. The quantitative phase involved the use of an online survey designed to determine the number of changes made within participants’ school health teacher preparation programs. All school health faculty members who attended an IHE Academy were recruited via e-mail to participate (N = 151). After three rounds of reminder e-mails, an acceptable
participation rate was reached (68%). Descriptive statistics were used to analyze survey data. In the qualitative phase, all participants who completed the online survey were recruited to participate in a follow-up phone interview (n = 103). The follow-up interview was tailored for each participant based upon their survey responses, and was designed to elicit examples of program changes made as a result of attendance at the IHE Academy, as well as benefits and barriers to change. A total of 54 interviews were conducted and recorded. Recorded interviews were transcribed and coded. An inter-rater coded 15% of the transcripts to ensure inter-rater reliability. Qualitative data was triangulated with each participant’s survey data.

**Results.** The majority of IHE Academy attendees made significant changes to their teacher preparation programs, and subsequently trained an estimated 2,800 pre-service school health educators in the use of the CDC’s online tools and resources. Through participant outreach, more than 7,000 school health faculty and in-service K-12 health educators were also trained.

**Conclusions.** The IHE Academy is an effective and sustainable approach to improving the quality of K-12 school health education.

**Recommendations.** To further improve the effectiveness of the IHE Academy, program planners should recruit school health graduate students who plan to work in teacher preparation in order to increase their return on investment. Program planners should also consider mandating participation an online community that could provide guidance and continuing support for IHE Academy attendees.
This dissertation is dedicated to my sister, Jessica Lynn Huelskamp. She is the gasoline on my fire, and I could not have finished this dissertation without her unwavering love and emotional support. She is the baddest, toughest woman I know.
Acknowledgements

I would like to acknowledge my committee chair, Dr. Joseph Dake, for his tremendous patience and for his expertise. I would also like to acknowledge my committee members, Dr. Susan Telljohann, Dr. Marlene Tappe, and Dr. Timothy Jordan, for making time in their hectic lives to guide me through this process, and to support me at every turn.
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List of Abbreviations

ACS..........................American Cancer Society

CDC.........................Centers for Disease Control and Prevention

CEHC.......................Characteristics of an Effective Health Education Curriculum

DASH.......................Division of Adolescent and School Health

HAA.........................Link Between Health and Academic Achievement

HEA.........................Health Education Assessment

HECAT....................Health Education Curriculum Analysis Tool

IHE...........................Institutes for Higher Education

IRB...........................Institutional Review Board

K-12.........................Kindergarten through 12th Grade

NHES......................National Health Education Standards

SBSS.......................School Based Surveillance Systems

SHI.........................School Health Index

SPSS.........................Statistical Package for the Social Sciences
List of Symbols

α......................Alpha

M.....................Mean

N......................Population

n.......................Sample

r.......................Correlation Coefficient

SD......................Standard Deviation
Chapter 1

Introduction

As perceptions and policies regarding school and adolescent health rapidly evolve, so too must the way health education is taught in our schools. Favorable policy changes sometimes give health educators the freedom to share more complete and accurate information with their students, new interventions and technology can make learning more accessible for an increasingly diverse community of learners, and new research adds to our growing body of content knowledge. Because the field of school health education is evolving, it is vital that those who teach health education in K-12 schools are provided with the training to adapt to today’s challenges in delivering the knowledge and skills that young people need to achieve optimum health and academic success.

Never before has the link between health and academic outcomes been more vitally important to the survival of school health education than it is now. Increasing pressure on teachers to provide evidence of accountability for student learning is pushing administrators to devote a higher percentage of the school day to math and reading. To school administrators, content areas not included in standardized testing, such as art, music, and health education, can be very attractive candidates for cut-backs. On average, less than half of the high schools in each state require students to take at least two health education courses (CDC, 2012). Another 37% of high schools (median percentage across states) require that students take just one health education course (CDC, 2012).

Although health and physical education are perceived by many administrators as expendable, evidence is building that demonstrates a link between risky health behaviors
and lower academic achievement (Basch, 2011; Carlson et al., 2008; MacLellan, Taylor, & Wood, 2008; Spriggs & Halpern, 2008). The development of Whole School, Whole Community, Whole Childs that emphasize increased access to high-quality health and physical education programs, health services, nutrition services, and other health-related resources could decrease the incidence of student engagement in risky health behaviors, thereby improving academic outcomes for struggling schools. And although health education is just one component of a Whole School, Whole Community, Whole Child, ensuring a supply of high-quality school health educators is essential to providing effective, comprehensive health education to young people. For in-service teachers, improvements in the quality of instruction can be facilitated through continuing education. But the quality of a pre-service teacher is dependent upon the quality of his or her teacher preparation program. To successfully prepare school health educators for the demands of the K-12 classroom, the expertise and skill of teacher education faculty becomes vitally important.

Statement of the Problem

Continuing professional development (PD) is a popular option for increasing the effectiveness of in-service school health educators, but to build a more uniformly effective teaching force, PD for teacher education faculty members may be a more efficient and sustainable strategy. It has been suggested that teacher education faculty members may be too isolated from the culture of K-12 education, resulting in a lack of information about current teaching strategies, technological innovations, and policy changes (Smith, Potts-Datema, & Nolte, 2005). If school health educators in K-12 classrooms are to maintain a strong grasp of current best practices and continue to teach
in ways that engage young, technology-savvy audiences throughout the duration of their careers, then there exists a critical need for teacher educators to integrate into their curricula a variety of tools and resources that can facilitate innovation for school health educators beyond graduation from teacher preparation programs. The IHE Academy provides training in the integration of online school health tools and resources that are available through the Division of Adolescent and School Health (DASH) at the CDC. This training is open to lead faculty members from institutions of higher education (IHE) that offer school health teacher preparation programs, and is intended to improve the quality of school health teacher preparation, thereby improving the quality of health education programs in K-12 schools. IHE Academy was first implemented in 2009, and since then, more than 200 school health teacher educators have been trained. Although program feedback solicited from IHE Academy attendees has been positive, the proportion of IHE Academy attendees who have, as a result of their attendance, made modifications to school health teacher preparation programs at their respective institutions is currently unknown.

The purpose of this study is to:

1. determine the proportion of IHE Academy attendees who have made course or curricular modifications to school health teacher preparation programs that are directly related to their IHE Academy training.

2. determine the nature of modifications made.

3. determine the magnitude of the impact of IHE Academy training on participants’ respective school health teacher education programs.
4. determine perceived barriers to change in school health teacher preparation programs.

5. determine whether the participant’s perceived benefits increase the number of program changes implemented that are directly related to the participant’s IHE Academy training.

6. determine whether the number of program changes implemented that are directly related to the participant’s IHE Academy training varies by perceived level of improvement in confidence to teach school health teacher preparation coursework, perceived level of improvement in utility of school health teacher preparation coursework, or perceived level of improvement in teacher candidate skills, teacher candidate content knowledge, and teacher candidate performance in field placements.

7. determine the proportion of IHE Academy attendees who have participated in outreach related to their IHE Academy training, such as presentations or professional development opportunities for colleagues or K-12 health educators.

**Hypotheses**

The following hypotheses will be explored in the current study:

**Hypothesis 1.** The majority of IHE Academy attendees will have implemented changes in their respective school health teacher preparation programs related to their IHE Academy training.
Hypothesis 2. The majority of IHE Academy attendees will have made course modifications related to their IHE Academy training, such as changes in course objectives, course content, exam content, labs, field experiences, or assignments.

Hypothesis 3. The majority of IHE Academy attendees have made curricular modifications related to their IHE Academy training, such as creation of new courses, or changes in number or type of required courses.

Hypothesis 4. The majority of IHE Academy attendees have trained a minimum of ten pre-service school health teachers in the use of school health tools, assessments, and/or resources since their IHE Academy training.

Hypothesis 5. The majority of IHE Academy attendees have participated in outreach or have provided professional development to others based on their IHE Academy training.

Hypothesis 6. The majority of IHE Academy attendees will have perceived a significant increase in confidence in their ability to teach school health education courses as a result of their IHE Academy training.

Hypothesis 7. The number of implemented program changes related to IHE Academy training will not vary by participants’ level of perceived improvement in confidence to teach school health teacher education coursework.

Hypothesis 8. The majority of IHE Academy attendees will have perceived significant improvement in the job-related skills of their teacher candidates upon graduation as a result of program changes related to their IHE Academy training.
**Hypothesis 9.** The number of implemented program changes related to IHE Academy training will not vary by participants’ level of perceived improvement in teacher candidates’ job-related skills.

**Hypothesis 10.** The majority of IHE Academy attendees will have perceived significant improvement in the content knowledge of their teacher candidates upon graduation as a result of program changes related to their IHE Academy training.

**Hypothesis 11.** The number of implemented program changes related to IHE Academy training will not vary by participants’ level of perceived improvement in teacher candidate content knowledge.

**Hypothesis 12.** The majority of IHE Academy attendees will have perceived significant improvement in teacher candidate field placement performance as a result of program changes related to their IHE Academy training.

**Hypothesis 13.** The number of implemented program changes related to IHE Academy training will not vary by participants’ level of perceived improvement in teacher candidate field placement performance.

**Hypothesis 14.** The majority of IHE Academy attendees will have perceived significant improvement in the utility of school health teacher preparation coursework at their respective institutions.

**Hypothesis 15.** The number of implemented program changes related to IHE Academy training will not vary by participants’ level of perceived improvement in the utility of school health teacher preparation coursework at their respective institutions.
Hypothesis 16. The number of implemented program changes related to IHE Academy training will not vary by the number of benefits that the participant perceives as a result of implementing those program changes.

Hypothesis 17. The majority of IHE Academy attendees will perceive at least one barrier to the implementation of program changes related to their IHE Academy training.

Definition of Terms

Due to their frequent usage, the following terms have been defined to reflect their intended meanings for the purposes of this study.

The Centers for Disease Control and Prevention (CDC) is the nation’s health protection agency and works to increase the health security of the United States.

The Division of Adolescent and School Health (DASH) is a part of the CDC, and collaborates with schools, health and education agencies, and community agencies and organizations to prevent health risk behaviors in children and adolescents.

In-service teacher refers to a teacher who has graduated from a teacher preparation program and is qualified to work as a teacher of record in the field.

Institutions of higher education refer to universities, colleges, or other post-secondary schools.

Pre-service teacher is synonymous with “teacher candidate” and refers to education students who have not yet completed a teacher preparation program.

Professional development is defined as “a comprehensive, sustained, and intensive
approach to improving teachers’ and principals’ effectiveness in raising student achievement” (Learning Forward, "Definition of Professional Development," 2014a).

Teacher candidate refers to an education student who has not yet completed a teacher preparation program.

Teacher educator refers to a faculty member responsible for training teacher candidates to meet certification or licensure requirements intended to prepare them for work in K-12 classrooms.

Teacher preparation program refers to any post-secondary curriculum designed to prepare and certify teachers for work in K-12 classrooms.

Whole School, Whole Community, Whole Child refers to a model recommended by the CDC for simultaneously improving students’ health and learning. The model is comprised of ten components, including health education, physical education, staff wellness, community involvement, family involvement, physical environment, mental and emotional climate, nutrition services, health services, and counseling, psychological, and social services.

Delimitations

This study utilized mixed methods to quantify the magnitude of the IHE Academy’s impact on the quality of school health teacher preparation programs, while also gathering qualitative data to provide examples of changes made to specific programs or courses, and insights into participants’ quantitative responses. While the use of mixed methods for this research allowed for the collection of data that may have been missed with the
use of only one method, it also had the potential to complicate data analysis, as some of
the qualitative findings contradicted quantitative findings (De Lisle, 2011). For example,
some of the IHE Academy attendees who agreed to participate in the study were already
utilizing many of the skills and resources emphasized in the IHE Academy training.
Some of these participants indicated in quantitative data collection that very few changes
(or no changes) had been made to their professional practices as a result of their IHE
Academy training, but they also provided numerous examples of how the IHE Academy
training benefited their program and their students. As the study sought to determine
whether the IHE Academy filled a gap in knowledge and training that may otherwise
have gone uncorrected, a retrospective component was included in the survey instrument
to determine which of the tools and resources included in IHE Academy training had
already been integrated into the school health education program at each institution prior
to each participant’s IHE Academy attendance.

This study excluded certain IHE Academy attendees, such as graduate students not
yet working in a school health teacher education program. Although the opinions of
these attendees may have provided helpful suggestions for improvements to future IHE
Academy trainings, they were not included here because they are not yet in a position to
have an impact on pre-service teachers. The goal of this study is to assess the impact of
IHE Academy trainings on teacher preparation programs.

Additionally, this study did not use individuals from the sampling frame to
determine the online survey instrument’s stability reliability. Because the sampling
frame was already relatively small, using individuals from this pool of potential
participants would only have further reduced the frame. To ensure stability reliability for
the survey instrument, test re-test was conducted using only individuals who were ineligible to participate due to their involvement with the organization or implementation of the IHE Academy, or due to their involvement with the facilitation of this program evaluation.

Limitations

This study used self-reported data to assess the effectiveness of a professional development program. Although all participants were assured that their responses would be kept strictly confidential, it is possible that some of the participants responded to items in ways that they perceived to be more socially desirable than the truth. Additionally, because participants were fully informed of the purpose of the study, it is possible that responses were affected by the participants’ personal interest in the outcome of the study. In other words, IHE Academy attendees who enjoyed their time at the IHE Academy and felt that it was worthwhile and effective may have been more inclined to participate, and may also have been inclined to provide more extremely positive responses than they might if they were unaware that the results of the study could be used to make decisions regarding future IHE Academy funding, or to make changes to the format of the IHE Academy. Conversely, participants who were indifferent regarding the future of the IHE Academy may have been less likely to agree to participate, resulting in non-response bias.

Methods

This section will describe the methods used to complete this study, including subjects, the development of the online survey instrument and the interview guide,
instrument testing, quantitative and qualitative data collection, and data analysis. This chapter will also address the confidentiality of the subjects.

**Participants.** Due to the small size of the study population, which included only the 151 school health education faculty members who have attended at least one IHE Academy, every eligible member of the study population was recruited to participate in this study. Individuals who were not eligible to participate included past IHE Academy attendees who had not been involved in teaching school health education coursework since their attendance, and past IHE Academy attendees who were involved in the facilitation of this study. Interviews were conducted until the supply of willing participants was exhausted. As the sponsors of the program evaluation suggested a sample of 120, this served as the target sample size. Multiple contacts were made with each past IHE Academy attendee by both e-mail and phone in an effort to recruit 120 participants. A total of 103 eligible IHE Academy attendees completed the online survey for a final participation rate of 68% for the quantitative data collection phase. Of the 103 IHE Academy attendees who completed the survey, 54 also completed the follow-up phone interview.

**Instruments.** This mixed methods study involved the use of two data collection phases, each with a separate instrument. In the first phase, quantitative data was collected through the use of an online survey that was developed using Qualtrics (Appendix C). In the second phase, an interview guide was used to elicit details and examples that could help clarify responses that were provided in the online survey (Appendix B). Both instruments were developed in collaboration with evaluation stakeholders to ensure that all research questions relevant to the interests of the
stakeholders were addressed during data collection.

The online survey consisted of a total of 49 items. Built-in skips allowed follow-up questions to be automatically omitted if they were not relevant for the participant. The first 12 questions were intended to determine the size and scope of the school health education program at the participant’s institution. Question 1 asked for an estimate of the total number of students attending each participant’s institution. Question 2 asked for the participant’s years of experience in teaching school health education coursework at the university level, and question 3 asked for the participant’s academic rank. Question 4 determined whether the program offers a school health education major, minor, or both. Question 5 assessed the number of credit hours needed at the participant’s institution in order to be eligible for a license to teach school health education. Question 6 determined whether the program was combined with physical education teacher education. Question 7 assessed the number of school health education faculty members at the institution. Questions 8 and 9 assessed the number of current school health education majors and minors respectively. Question 10 asked for an estimate of the number of school health teacher candidates that have graduated from the participant’s institution over the past five years. Question 11 determined which school health teacher preparation courses are taught by the participant, and question 12 asked the participant to estimate the percentage of his or her teaching load that is devoted to those courses.

The next seven items explored the magnitude of the impact that the IHE Academy has had on participants’ professional practices, including networking (question 13), presentations at professional conferences related to IHE Academy training (question 14), and the provision of in-service training or continuing education related to IHE Academy
training (question 15). Follow-up questions determined which topics covered at the IHE Academy were included in presentations or trainings (question 16), and approximately how many individuals were reached (question 17).

The remaining survey items, with the exception of the final two questions, were designed to elicit details about which tools and resources covered in IHE Academy training had been integrated into the participant’s school health education program, and how much class time is now devoted to each tool or resource. The final two questions were designed to assist in scheduling the follow-up phone interview.

The interview guide consisted of up to fifteen items, all of which were developed to serve as a follow-up to the completed online survey. The interview items were tailored for each participant based upon their responses to the survey items. The first eight items were used to elicit examples of how each of the topics from the IHE Academy had been integrated into the school health education curriculum at the participant’s institution. However, any of the interview items could be cut from the interview, depending on how many of the topics from the IHE Academy had been integrated since the participant’s attendance. Any topics that were already covered in the curriculum prior to the participant’s attendance were not discussed in the interview, nor were any topics that are not currently covered.

**Instrument testing.** The survey instrument was piloted and tested for stability reliability using individuals who would be included in the sample population were it not for their involvement with this study or their involvement in facilitating the IHE Academy. Because the sampling frame was so small, eligible individuals were not used
for stability reliability testing, as this would have only further reduced the size of the sampling frame. Because the survey included a set of Likert-type scales intended to measure perceived benefits, internal consistency reliability was tested for this set of scales using Cronbach’s alpha. Given that the Cronbach’s alpha for this set of scales was unusually high (.986), one item was subsequently removed from the scale (perceived improvement in teacher candidate skill level), as it correlated perfectly with another item (perceived improvement in teacher candidate content knowledge). Such a high correlation between survey items can be indicative that the items, though worded differently, have been interpreted by participants to mean the same thing. Removal of the item referring to perceived improvement in teacher candidate skill level resulted in a score of .979. Although this score is still considered unusually high, because correlation coefficients for all other scale items were less than 1.0, but greater than .9, the remaining items were included in data analysis. Content validity and face validity were assessed by evaluation stakeholders.

Face validity for the interview guide was ensured through an extensive comprehensive literature review (Appendix D). The interview guide was pilot tested with IHE Academy attendees who were ineligible to participate due to their close involvement with this study, or with the implementation of the IHE Academy itself. This included the dissertation committee members and faculty who had presented at one or more of the IHE Academies. Piloting the interview guide ensured that the questions were not limiting in ways that might compromise the richness of the data. No stability reliability testing was conducted for the interview guide, as this would have only served to further restrict the pool of potential participants, and as any form of reliability testing is
generally considered inappropriate for qualitative studies (Golfashani, 2003). The interview guide was, however, reviewed by the dissertation committee and by evaluation stakeholders to ensure high content validity.

**Study protocol.** The researcher made initial contact with each past IHE Academy attendee via e-mail, using contact information furnished by the ACS. This initial notification was sent out in winter of 2015, and although the content of the message was developed by the researcher, the message was reviewed and forwarded to potential participants by the ACS Program Director, Ms. Mary Waters. It was expected that this would help improve the response rate, as all past IHE Academy attendees had previously communicated with Ms. Waters, and would recognize her name, making them more likely to read the notification. In the notification e-mail, the researcher explained the purpose of the IHE Academy evaluation, the intended uses for the evaluation findings, and the tremendous value of the information that past attendees could provide simply by participating in an online survey and follow-up phone interview. Within 48 hours of this notification, a second e-mail was sent to each participant. This second e-mail included an informed consent form, which can be found in Appendix A.

Those IHE Academy attendees who completed and returned the form were sent a third e-mail containing a link to the online survey, as well as an outline of the survey questions and a copy of the interview guide. Potential participants were encouraged to review the questions in advance. The Interview Guide can be found in Appendix B, and a copy of the items included in the online survey instrument can be found in Appendix C. Each participant was required to complete the survey prior to participating in the follow-up phone interview, as interview questions were tailored for each participant based on his
or her survey responses. To ensure that the participant’s survey was completed prior to his or her interview, scheduling was initiated at the end of the survey. Final items asked participants to provide two potential dates and times that would be convenient for an interview, as well as a phone number that the researcher could call on the confirmed interview date. Any past IHE Academy attendee who did not return a signed informed consent form within two weeks of receipt was sent a reminder e-mail. The reminder e-mail included the informed consent form for any attendees who may have deleted the original e-mail. After an additional four weeks had passed and participation had not significantly improved, committee members including Ms. Mary Waters, Dr. Joseph Dake, and Dr. Susan Telljohann intervened on behalf of the researcher to boost participation. Individualized e-mails were sent to IHE Academy attendees who had not yet responded. The researcher also attempted to locate telephone numbers for potential participants who did not respond to the individualized reminder e-mails. These individuals were contacted by phone, if possible. The final participation rate for the online survey was 68% (n = 103).

For those participants who completed the online survey, responses were used to omit interview questions that were not applicable. This streamlined the interview process and saved time for the participants. The researcher took written notes during the course of each interview to capture qualitative data. To ensure that important details were not missed, all interviews were recorded using a voice recorder application (Tape-a-Call). Recorded interviews were transcribed by the researcher using Dragon voice recognition software. The interview transcripts helped ensure descriptive validity. In order to achieve higher interpretive validity, the researcher e-mailed a copy of the written
interview notes to each participant within 24 hours of his or her interview. This gave each participant an opportunity to make additions to the notes, and if necessary, to correct any misinterpretations. Only 6% of interview participants (n = 3) responded with corrections and/or additions to the researcher's notes. Approximately half of the individuals who completed the survey also participated in the follow-up interview (n = 54), for a final participation rate of 36% for the qualitative data collection phase.

**Data analysis.** All quantitative data was exported from Qualtrics into SPSS. Descriptive statistics (frequencies, means, range of scores, standard deviations) were used to describe characteristics of the participants’ school health education programs, such as number of school health education majors and minors, number of credit hours required to obtain a school health education license, school health education courses offered, and number of faculty members in the department. Descriptive statistics were used to describe the participants in terms of years of experience and courses taught. Descriptive statistics were also used to describe the impact of IHE Academy training on school health teacher education programs, including the nature of program changes implemented, such as curricular and course modifications, as well as the number of students impacted by these changes. Finally, descriptive statistics were used to estimate the number of individuals trained through any form of outreach conducted by the participants, such as conference presentations and professional development opportunities for colleagues and K-12 school health educators.

Additionally, inferential statistics were used to determine whether the number of implemented program changes related to IHE Academy training varied by the participant’s perceived benefits related to implementing those changes. Perceived
benefits that were analyzed included improved faculty member confidence in teaching school health teacher preparation coursework, improved relevance or utility of school health teacher preparation coursework, and improvements in teacher candidate content knowledge and performance in field placements. Inferential statistics were also used to determine whether any relationship exists between the total number of implemented program changes related to the participants’ IHE Academy training and the participants’ perceived benefits associated with those program changes. The magnitude of IHE Academy impact was determined for each attendee’s institution by identifying the number of tools and resources included in IHE Academy training that are currently covered in the attendee’s institution, but were not previously covered prior to the attendee’s participation in the training, or were previously covered in less depth.

For all qualitative data collected during the interviews, the researcher transcribed responses and coded the data to identify common themes occurring in responses from multiple participants. An additional coder was utilized to ensure inter-rater reliability. This inter-rater independently read and coded a random sample of the interview transcripts, totaling 15% of the entire qualitative data set. The researcher then compared her own coded data against the inter-rater’s codes to determine the level of correlation between the two. Inter-rater reliability was considered adequate, with a correlation coefficient of .79. A correlation coefficient of .75 is considered generally acceptable (Hartmann, 1977).
November 6, 2015

Dear Dr. Dewald:

Attached please find a manuscript I am submitting for publication in *The Journal of Health Education Teaching*. The purpose of the article entitled “A National Assessment of the Impact of the Institutes for Higher Education Academy on School Health Faculty” was to determine the magnitude of the impact of a professional development conference on the quality of school health teacher preparation programs nationwide. The conference, sponsored by the American Cancer Society and the Centers for Disease Control and Prevention, was designed to serve as a sustainable, upstream approach to improving K-12 health education by better preparing pre-service school health educators. Co-authors assisted with study design, recruitment of participants, and editing. The manuscript represents original work and will not be submitted elsewhere.

If you need additional information please contact me by telephone at 419-345-9186 or e-mail at Amelia.huelskamp@utoledo.edu. Upon acceptance, the publishers may alter
formatting as necessary.

I thank the editor and reviewers in advance for their time and consideration.

Sincerely,

Amelia Huelskamp, PhD
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A National Assessment of the Impact of the Institutes for Higher Education Academy on School Health Faculty

ABSTRACT

Purpose. The purpose of this study was to evaluate the impact of the Institutes for Higher Education Academy (IHEA), a professional conference intended to train school health education faculty in the use of online resources available through the Centers for Disease Control and Prevention (CDC), and to facilitate integration of these resources into school health teacher preparation programs.

Methods. This mixed methods study included two data collection phases. The quantitative phase involved the use of an online survey designed to determine the number of changes made within participants’ school health teacher preparation programs. All school health faculty members who attended an IHEA were recruited via e-mail to participate (N = 151). After three rounds of reminder e-mails, an acceptable participation rate was reached (68%). Descriptive statistics were used to analyze survey data. In the qualitative phase, all participants who completed the online survey were recruited to participate in a follow-up phone interview (n = 103). The follow-up interview was tailored for each participant based upon their survey responses, and was designed to elicit examples of program changes made as a result of attendance at IHEA, as well as benefits and barriers to change. A total of 54 interviews were conducted and recorded. Recorded interviews were transcribed and coded. An inter-rater coded 15% of the transcripts to ensure inter-rater reliability. Qualitative data was triangulated with each participant’s survey data.

Results. The majority of IHEA attendees surveyed made significant changes to their teacher preparation programs, and subsequently trained an estimated 2,800 pre-service school health educators in the use of the CDC’s online tools and resources. Through participant outreach, more than 7,000 school health faculty and in-service K-12 health educators were also trained.

Conclusions. IHEA is an effective and sustainable approach to improving the quality of K-12 school health education.
**Recommendations.** To further improve the effectiveness of IHEA, program planners should consider requiring post-program participation in an online community that could provide guidance and continuing support for IHEA attendees.
INTRODUCTION

Professional development (PD) has long been utilized to add to teachers’ repertoires in an on-going quest to meet the demands of perpetually changing classroom contexts. PD allows educators to continue to keep abreast of best practices beyond graduation from teacher education programs, and can encompass everything from in-service training, to graduate coursework, to mentoring programs or professional learning communities. Many educators in K-12 schools feel as though they have desperately limited resources upon which they can rely to further develop pedagogy and increase content knowledge (Kardos, Johnson, Peske, Kauffman, & Liu, 2001; Makopoulou & Armour, 2011; Schlager & Fusko, 2003). It is possible that for health educators, these issues could be intensified, as some schools may have only one health educator in the building. This could mean that participation in PD is particularly critical to the success of health educators, who may struggle to find sufficient support from colleagues within their own schools or districts. For faculty members in teacher education programs, consistent participation in PD could be just as critical as it is for K-12 educators. For faculty members who train pre-service teachers, PD is vital in keeping teacher preparation programs aligned with administrator and state department of education expectations for effectiveness. Teacher preparation coursework that is not well-aligned with the most recent research and innovations in education is unlikely to produce highly successful teacher candidates. Because many teacher educators have been employed outside of the K-12 sector for years, and many others were never employed in the K-12 sector before entering academia, they may be too isolated from the evolution of primary and secondary education to keep courses current without the benefit of PD.

PD in schools and universities has taken many forms, and definitive answers to questions about effectiveness are difficult to find. At its worst, PD can prove to be a waste of time. Unfortunately, there are significant challenges in separating effective PD programs from those that are a waste of time and resources because any program that is intensive enough to produce results is typically implemented and found to be successful in only one specific context (Guskey, 2000). Although many issues can impact the effectiveness of PD programs, PD for teacher education faculty members comes with its own set of challenges not typically seen at the K-12
level. For example, faculty members may feel pressured to devote much of their time to research and publications, the amount of time that they are able to devote to developing their teaching practices can be adversely affected (Hickson & Wilson, 2009; Korthagen, Loughran, & Lunenberg, 2005; Martinez, 2008). In fact, many universities placing high emphasis on research may be willing to overlook lower levels of accomplishment in teaching and learning, even when a lack of teaching expertise among faculty members results in lower student enrollment and retention (Drew & Klopper, 2014; Hickson & Wilson, 2009; Martinez, 2008). These problems can be particularly worrisome in the case of teacher educators, who are often expected to produce as many publications as faculty members in other departments, while also working to meet the highest expectations with regards to modeling innovative teaching strategies and setting the standard for best practices.

Contributing further to a lack of support for quality teaching and pedagogy-related PD, universities often have few requirements for teacher educator qualifications, such as experience in K-12 classrooms, or evidence of success in translating K-12 experience into effectiveness in working with adult learners (Korthagen et al., 2005). Korthagen and associates (2005) suggest that teacher educators are often simply assumed to be effective in teaching adult learners how to teach others, stating, “The fact that becoming a teacher educator is assumed to not be problematic, suggests that the work of teacher educators themselves is neither particularly specialized nor highly valued” (p. 110). This is troublesome, because university leadership is unlikely to allocate resources to the development of skills that are considered neither specialized nor valuable.

This is unfortunate, because in order to build a more uniformly effective teaching force, PD for teacher education faculty members may actually be the most efficient and sustainable strategy. It has been suggested that teacher education faculty members may be too isolated from the culture of K-12 education, resulting in a lack of information about current teaching strategies, technological innovations, and policy changes (Smith, Potts-Datema, & Nolte, 2005). If school health educators in K-12 classrooms are to maintain a strong grasp of current best practices and continue to teach in ways that engage young, technology-savvy audiences
throughout the duration of their careers, then there exists a critical need for teacher educators to integrate into their curricula a variety of tools and resources that can facilitate innovation for school health educators beyond graduation from teacher preparation programs. The Institutes for Higher Education Academy (IHEA) provides training in the integration of online school health tools and resources that are available through DASH at the CDC. A sample itinerary for this training can be found in Table 4. This training is open to lead faculty members from institutions of higher education (IHE) that offer school health teacher preparation programs, and is intended to improve the quality of school health teacher preparation, thereby improving the quality of health education programs in K-12 schools. IHEA was first implemented in 2009, and since then, more than 150 school health teacher educators have been trained. While program feedback solicited from IHEA attendees has been positive, the proportion of IHEA attendees who have, as a result of their attendance, made modifications to school health teacher preparation programs at their respective institutions is currently unknown.

PURPOSE

The purpose of this study was to determine:

1. the proportion of IHEA attendees who have made course or curricular modifications to school health teacher preparation programs that are directly related to their IHEA training.
2. the nature of modifications made by IHEA attendees.
3. the perceived barriers to change in school health teacher preparation programs held by IHEA attendees.
4. what proportion of IHEA attendees have participated in outreach related to their IHEA training, such as presentations or professional development opportunities for colleagues or K-12 health educators.

METHODS

This study utilized mixed methods. An online survey was used to collect quantitative data, and semi-structured follow-up phone interviews were used to collect qualitative data, such as anecdotal evidence.


Subjects

Due to the small size of the study population, which included only the 151 school health education faculty members who have attended at least one IHEA, every eligible member of the study population was recruited to participate in this study. Individuals who were not eligible to participate included past IHEA attendees who had not been involved in teaching school health education coursework since their attendance, and past IHEA attendees who were involved in the facilitation of this study. Interviews were conducted until the supply of willing participants was exhausted. As the sponsors of the program evaluation suggested a sample of 120, this served as the target sample size. Multiple contacts were made with each past IHEA attendee by both e-mail and phone in an effort to recruit 120 participants. About two thirds of eligible IHEA attendees (n = 103) completed the online survey for a final participation rate of 68% for the quantitative data collection phase. Fifty-four of the IHEA attendees who completed the survey also completed the follow-up phone interview.

Instruments

This mixed methods study involved the use of two data collection phases, each with a separate instrument. In the first phase, quantitative data was collected through the use of an online survey that was developed using Qualtrics. In the second phase, an interview guide was used to elicit details and examples that could help clarify responses that were provided in the online survey. Both instruments were developed in collaboration with evaluation stakeholders to ensure that all research questions relevant to the interests of the stakeholders were addressed during data collection.

The online survey consisted of a total of 49 items. Built-in skips allowed follow-up questions to be automatically omitted if they were not relevant for the participant. The first twelve questions were intended to determine the size and scope of the school health education program at the participant’s institution. Question 1 asked for an estimate of the total number of students attending each participant’s institution. Question 2 asked for the participant’s years of experience
in teaching school health education coursework at the university level, and question 3 asked for the participant's academic rank. Question 4 determined whether the program offers a school health education major, minor, or both. Question 5 assessed the number of credit hours needed at the participant's institution in order to be eligible for a license to teach school health education. Question 6 determined whether the program was combined with physical education teacher education. Question 7 assessed the number of school health education faculty members at the institution. Questions 8 and 9 assessed the number of current school health education majors and minors respectively. Question 10 asked for an estimate of the number of school health teacher candidates that have graduated from the participant's institution over the past five years. Question 11 determined which school health teacher preparation courses are taught by the participant, and question 12 asked the participant to estimate the percentage of his or her teaching load that is devoted to those courses.

The next seven items explored the magnitude of the impact that IHEA has had on participants' professional practices, including networking (question 13), presentations at professional conferences related to IHEA training (question 14), and the provision of in-service training or continuing education related to IHEA training (question 15). Follow-up questions determined which topics covered at the IHEA were included in presentations or trainings (question 16), and approximately how many individuals were reached (question 17).

The remaining survey items, with the exception of the final two questions, were designed to elicit details about which tools and resources covered in IHEA training had been integrated into the participant's school health education program, and how much class time is now devoted to each tool or resource. The final two questions were designed to assist in scheduling the follow-up phone interview.

The interview guide consisted of up to thirteen items, all of which were developed to serve as a follow-up to the completed online survey. The interview items were tailored for each participant based upon their responses to the survey items. The first eight items were used to elicit examples of how each of the topics from the IHEA had been integrated into the school
health education curriculum at the participant’s institution. However, any of the interview items could be cut from the interview, depending on how many of the topics from the IHEA had been integrated since the participant’s attendance. Any topics that were already covered in the curriculum prior to the participant’s attendance were not discussed in the interview, nor were any topics that are not currently covered.

The remaining interview items were designed to elicit examples of barriers to implementing program changes, additional changes made that were not mentioned in the survey questionnaire, most memorable and most useful aspects of the IHEA training, and examples of improvements that participants had noticed in the performance of their teacher candidates and in their own self-confidence.

Instrument Testing

The survey instrument was piloted and tested for stability reliability using individuals who would be included in the sample population were it not for their involvement with this study or their involvement in facilitating the IHEA. Because the sampling frame was so small, eligible individuals were not used for stability reliability testing, as this would have only further reduced the size of the sampling frame. The survey instrument was administered to the pilot sample two times, with one week between each administration. Results ($r = .795$, $\alpha = .05$) indicated that the survey was capable of producing consistent results over time. Content validity and face validity were assessed by evaluation stakeholders.

Face validity for the interview guide was ensured through an extensive comprehensive literature review. The interview guide was pilot tested with IHEA attendees who were ineligible to participate due to their close involvement with this study, or with the implementation of IHEA itself. This included co-authors of this study and any faculty members who had presented at one or more IHEA. Piloting the interview guide ensured that the questions were not limiting in ways that might compromise the richness of the data. No stability reliability testing was conducted for the interview guide, as this would have only served to further restrict the pool of potential
participants, and as any form of reliability testing is generally considered inappropriate for qualitative studies (Golafshani, 2003). The interview guide was, however, reviewed by evaluation stakeholders to ensure high content validity.

**Study Protocol**

The researcher made initial contact with each past IHEA attendee via e-mail, using contact information furnished by the ACS. This initial notification was sent out in winter of 2015, and although the content of the message was developed by the researcher, the message was reviewed and forwarded to potential participants by the ACS Program Director. It was expected that this would help improve the response rate, as all past IHEA attendees had previously communicated with the ACS Program Director, and would recognize her name, making them more likely to read the notification. In the notification e-mail, the researcher explained the purpose of the IHEA evaluation, the intended uses for the evaluation findings, and the tremendous value of the information that past attendees could provide simply by participating in an online survey and follow-up phone interview. Within 48 hours of this notification, a second e-mail was sent to each participant. This second e-mail included an informed consent form approved by the IRB.

Those IHEA attendees who completed and returned the form were sent a third e-mail containing a link to the online survey, as well as an outline of the survey questions and a copy of the interview guide. Potential participants were encouraged to review the questions in advance. Each participant was required to complete the survey prior to participating in the follow-up phone interview, as interview questions were tailored for each participant based on his or her survey responses. To ensure that the participant’s survey was completed prior to his or her interview, scheduling was initiated at the end of the survey. Final items asked participants to provide two potential dates and times that would be convenient for an interview, as well as a phone number that the researcher could call on the confirmed interview date. Any past IHEA attendees who did not return a signed informed consent form within two weeks of receipt were sent reminder e-mails. The reminder e-mail included the informed consent form for any attendees who may have
deleted the original e-mail. After an additional four weeks had passed and participation had not significantly improved, the ACS Program Director intervened on behalf of the researcher to boost participation. Individualized e-mails were sent to IHEA attendees who had not yet responded. The researcher also attempted to locate telephone numbers for potential participants who did not respond to the individualized reminder e-mails. These individuals were contacted by phone, if possible. The final participation rate for the online survey was 68% (n = 103).

For those participants who completed the online survey, responses were used to omit interview questions that were not applicable. This streamlined the interview process and saved time for the participants. The researcher took written notes during the course of each interview to capture qualitative data, and to ensure that important details were not missed, all interviews were recorded using a voice recorder application (Tape-a-Call). Recorded interviews were transcribed by the researcher using Dragon voice recognition software. The interview transcripts helped ensure descriptive validity. In order to achieve higher interpretive validity, the researcher e-mailed a copy of the written interview notes to each participant within 24 hours of his or her interview. This gave each participant an opportunity to make additions to the notes, and if necessary, to correct any misinterpretations.

Data Analysis

All quantitative data was exported from Qualtrics into SPSS. Descriptive statistics (frequencies, means, range of scores, standard deviations) were used to describe characteristics of the participants’ school health education programs, such as number of school health education majors and minors, number of credit hours required to obtain a school health education license, school health education courses offered, and number of faculty members in the department. Descriptive statistics were used to describe the participants in terms of years of experience and courses taught. Descriptive statistics were also used to describe the impact of IHEA training on school health teacher education programs, including the nature of program changes implemented, such as curricular and course modifications, as well as the number of students impacted by these changes. Finally, descriptive statistics were used to estimate the number of individuals trained through any form of outreach conducted by the participants, such as
conference presentations and professional development opportunities for colleagues and K-12 school health educators.

For all qualitative data collected during the interviews, the researcher transcribed responses and coded the data to identify common themes occurring in responses from multiple participants. An additional coder was utilized to ensure inter-rater reliability. This inter-rater independently read and coded a random sample of the interview transcripts, totaling 15% of the entire qualitative data set. The researcher then compared her own coded data against the inter-rater’s codes to determine the level of correlation between the two. Inter-rater reliability was considered adequate, with a correlation coefficient of .79. A correlation coefficient of .75 is considered generally acceptable (Hartmann, 1977).

IRB APPROVAL

IRB approval for this study was granted in March of 2015 through the research institution’s Office of Research. All study protocol, data collection instruments, participant recruiting measures, and confidentiality measures were approved by the IRB in advance.

INFORMED CONSENT

The informed consent form approved by the IRB was sent to all participants prior to their participation. All participants in this study agreed to the terms outlined in the informed consent form, and all participants agreed to have their phone interviews recorded for purposes of descriptive validity. Signed informed consent forms are currently stored in a locked file cabinet in the researcher’s office at Bowling Green State University. Only the researcher has access to this file cabinet.

RESULTS

Quantitative Results

This section provides a summary of the survey data. Descriptive statistics were used to analyze the survey data (mean, range, standard deviation, etc.).

Institutional Characteristics

Of the IHEA attendees surveyed, 31% indicated that they came from small institutions serving fewer than 5,000 students, while 25% of attendees surveyed came from large
institutions serving more than 20,000 students. The remaining 44% of institutions represented had enrollments of somewhere between 5,000 and 20,000 students. Within those institutions, 23% offer both a school health major and minor. 22% offer a health minor only. A majority offer only a school health major (54%). 27% of those institutions offer the option of combining health education and physical education for dual licensure, while 38% do not, and an additional 35% require that teacher candidates complete a dual major in health and physical education.

Within these institutions’ school health programs, a majority (53%) employed either two or three full-time faculty members. 18% of school health programs represented in the results employed only 1 full-time faculty member, and 4% employed only part-time faculty. The remaining 25% employed 4 or more full-time faculty members. The number of teacher candidates graduating in the last five years varies widely across institutions, with 20% of institutions graduating more than fifty school health teacher candidates in the last five years. 19% have graduated fewer than nine school health teacher candidates in the last five years. The remaining 61% of institutions have each graduated a total of between 10 and 49 school health teacher candidates between 2010 and the present. The number of credit hours required for school health teacher candidates to be eligible for licensure varies from as few as zero (teacher candidates need only pass a licensure exam to be eligible), to as many as 128.

Faculty Characteristics

A plurality of faculty members participating in the survey had 10-14 years of experience (24%). Of those who took the survey, 32% identified themselves as associate professors, 24% as assistant professors, 19% as full professors, and 14% as lecturers or instructors. The remaining 10% indicated that they were retired, part-time adjunct faculty, or curriculum coordinator. The majority of participants (64%) teach a Health Methods course, and a large proportion (40%) teach a School Health Programs course. The majority of participants (60%) devote 50% or less than 50% of their teaching load to school health education courses. The remaining 40% devote more than half of their teaching load to school health education courses.

Impact of IHEA

This program evaluation has shown the impact of the IHEA on school health
teacher education programs to be significant in a number of ways. Many participating faculty (81%) indicated that they are now better able to network with other school health education faculty as a result of their IHEA attendance. A majority (58%) have made at least one presentation at a national, state, or regional conference that pertained to a topic they were trained on at IHEA. Of those who presented on one of the IHEA topics, 44% estimated that their presentations reached fewer than 50 individuals, but 30% estimated that their presentations reached between 50 and 99 people, and the remaining 26% estimated that their presentations had reached 100 people or more. About half (47%) of participants reported that they have provided in-service training to other school health faculty members, or to K-12 school districts related to IHEA topics.

The topics covered at IHEA have been consistently integrated, either for the first time, or to a greater degree than previously, in many of the participants' institutions (see Figure 1 and Figure 2). Many participants (80%) reported that they are currently covering the School Health Index (SHI) in their programs, and 76% of those participants also reported that the SHI was covered in less detail, or was not covered at all prior to their attendance at IHEA. The vast majority of participants (93%) reported that they are currently covering the Characteristics of Effective Health Curricula in their programs, and 71% of those participants reported that this topic was covered in less detail, or not covered at all prior to their IHEA attendance. All participants surveyed now cover the National Health Education Standards (NHES), and 42% are spending more time on the NHES than they did previously. A majority (92%) of participants are now covering health education assessment strategies, and 51% of those participants reported that they either devoted less time to assessment strategies or did not cover assessment strategies at all prior to their IHEA attendance. Most participants (78%) reported that they are currently covering the Health Education Curriculum Analysis Tool (HECAT), and 73% of those participants reported that the HECAT was covered less thoroughly, or was not covered at all prior to their IHEA attendance. A majority (93%) of participants are currently covering the link between health and academic achievement, and of that 93%, 48% reported that they are covering this topic more than they did prior to attending the IHEA. Finally, 83% of participants reported that they are
currently covering school-based surveillance systems, and of that 83%, 47% reported that this topic was covered less thoroughly prior to IHEA attendance, or was not covered at all.

**Qualitative Results**

Codes for all qualitative data collected were developed using inductive analysis, meaning that codes were developed from the data, rather than established prior to data collection. A single set of codes was developed for all interview questions addressing methods of integrating the CDC tools and resources into participants’ school health teacher education programs, and frequencies for each code were tallied (see Table 1).

The most common method of integrating IHEA content into school health teacher education is to devote lecture or discussion time to the content. It appears that most faculty members prefer to use direct instruction to introduce a new tool or resource, and while some faculty members will stop at direct instruction and consider the topic “covered,” others will use additional strategies in an attempt to ensure higher comprehension and retention of the information. The second most common strategy for integrating IHEA content is the use of an assignment or other form of assessment to measure students’ abilities to utilize a tool or resource, followed by the use of an in-class activity. Some faculty members have adapted learning activities used at IHEA to fit the needs of their own students. The most popular of these among participants surveyed and interviewed was the activity used to teach the Characteristics of an Effective Health Curriculum, which involved the use of a “sticky wall” and required participants to match different teaching practices with the characteristics with which they aligned. Not many faculty members mentioned giving students documents or hard copies of the CDC tools and resources, which is not surprising given the popularity of technology in today’s classrooms. What is surprising, however, is that fairly low numbers of faculty members mentioned showing students how to access the tools and resources online. A possible explanation for this could be that many faculty members who were interviewed simply assumed it went without saying that they show students the online tool or resource when they discuss it with students or provide direct instruction.

Separate sets of codes were developed for participants’ perceived barriers to change,
any additional changes made, such as curricular changes or increased outreach efforts, and most memorable and impactful parts of the IHEA experience. Frequencies for these codes were tracked (see Table 2 and Table 3 for examples).

Faculty members participating in the interview were asked to describe any additional changes they may have made to their school health teacher preparation programs as a result of their IHEA training. Examples of additional changes include the addition of new courses, or altering existing courses to make them more content-specific for school health education. The most commonly cited change not pertaining to the integration of IHEA content into existing coursework was an increase in outreach efforts. Seventeen faculty members interviewed stated that they are now spending more time in K-12 schools to provide in-service training to school health educators, to implement the SHI and provide improvement plans, to implement new health programming, etc. One participant made the following statement concerning increased community outreach as a result of the IHEA training.

“Really all of the training I received at the Academy has really supported me to be more useful as a professional development provider for in-service teachers and in-service school professionals. And since the Academy, I am now serving on two district wellness committees, and I have had an instrumental role in utilizing the HECAT in one, in all the ways that the HECAT is meant to be used, from analyzing the current curriculum, to using it to develop a scope and sequence in the planning process. I would not have been able to do that had I not had the training at the Academy.”

Faculty members interviewed gave widely varying responses to the question of whether barriers had been an issue in their attempts to implement changes in their school health teacher education programs. The single greatest barrier to implementing program changes related to IHEA training was lack of time to cover all of the content. Twenty faculty members stated that they do not have enough credit hours to train their teacher candidates in the use of all of the tools and resources that are available through the CDC. A significant proportion (19%) also stated that
their institution or program has been unable to establish strong relationships with local school
districts, and that there tends to be mistrust among school administrators when university faculty
attempt to provide training or services to local K-12 schools. A large number (24%) also stated
that they have dealt with no barriers at all in the process of implementing program changes.

It is also worth noting that resistance or simply a lack of support from administrators,
colleagues, or politicians, although coded separately, becomes the next most significant barrier
when these frequencies are combined (n = 8). One participant stated, “We have not had
consistent leadership in our program. In the last five years we have changed department heads
or program directors four times. So the lack of leadership has been a problem because these
changes need to come from the leader. If that person is not on board and supporting it, then it
doesn’t happen.”

Although the final two interview questions were similar (addressing most memorable and
most impactful aspects of the IHEA experience), and responses to these last two
questions were, in fact, the same for some of the participants, two distinct sets of codes still
emerged, indicating that what was most memorable for participants was not necessarily the most
useful, and vice versa. Some codes did, however, emerge in both sets. Networking, or making
professional connections with others in the field, turned out to be not only the most memorable
part of the IHEA experience for the largest proportion of participants interviewed, but also the
most impactful part of the IHEA experience. One participant said, “Primarily, it’s about networking.
Connecting with people who had some of the same questions. But some of those people had
answers to the questions. So it was really more about informal break room, sitting outside, just
chatting with each other. It showed us that the things we were doing were the right things, and
helped us improve through the use of tools.”

Large proportions of participants interviewed also cited the HECAT, the SHI, and time
provided for creating action plans as the most useful parts of IHEA. One in five of the participants
interviewed (n = 11) stated that the entire experience has been impactful, and that they could not
possibly pick just one part of IHEA that had been the most useful for them.
CONCLUSIONS

The results of this program evaluation suggest that the impact of the IHEA has been far-reaching. Not only have IHEA participants been working across institutions all over the United States to integrate the CDC tools and resources into their school health teacher education coursework, but a majority have also indicated that they have completed at least one presentation about one or more of the CDC tools and resources at national, state, or regional conferences, thereby impacting other school health faculty and K-12 health educators who have not had the opportunity to be trained at the IHEA. Through these conference presentations, IHEA attendees have reached an estimated 4,500 individuals. Additionally, almost half of IHEA attendees surveyed have indicated that they have provided professional development for in-service K-12 educators to train these individuals in the use of one or more of the CDC tools and resources, reaching another estimated 3,000 individuals. Given the numbers of school health educators graduating from institutions where IHEA attendees are employed, it is estimated that over the course of the last five years, approximately 2,800 school health teacher candidates have been trained in the use of the CDC tools and resources by the participants who completed the survey. This means that the total number of school health teacher candidates trained could actually be significantly larger, as the participation rate for the survey was only 68% of the total number of school health faculty members trained.

RECOMMENDATIONS

The following recommendations are based on the survey results, as well as participants’ interview responses. Some direct quotes have been included.

According to the survey data, only 10% of IHEA attendees who participated in this evaluation had less than five years of experience as a school health teacher educator prior to their IHEA training. Although it is also important to train more seasoned veterans in the field to ensure that all school health teacher education programs are integrating the CDC tools and resources into their coursework, it is likely that younger, less experienced faculty members are in a better position to have an even greater impact on K-12 health education, as they will have more remaining time in the profession, and thus will train a greater number of future K-12 health
educators following IHEA attendance. Several of the veteran faculty members who were trained at IHEA have already retired and are no longer active in the field. Previous efforts to target school health faculty earlier in their careers have been reported by the ACS Program Director as only marginally successful. Previous IHEA initiatives have included school health graduate students preparing for a career in health education teacher preparation. It is advisable that future IHEA initiatives should continue to target pre-service school health faculty in order to see a larger return on investment.

Nearly 20% of the faculty members trained at IHEA are the sole full-time faculty within their school health teacher education programs. Given that the interview data suggests that networking opportunities are considered to be not only the most memorable aspect of the IHEA experience, but also the most useful or impactful, it may be helpful to many of these isolated faculty to require participation in a professional online community of IHEA attendees. Such an online community was created in the past, and although participation was encouraged, it was not required. Voluntary participation in the online community was deemed too low by IHEA organizers to warrant continued maintenance. However, this kind of support community could provide a forum for attendees to continue to network with one another, share ideas and challenges, and provide support to one another long after their IHEA training has ended. Because lack of follow-up has been shown to be one of the most detrimental aspects of many professional development opportunities (Cormas & Barufaldi, 2011; Gulamhussein, 2013; Lauer, Christopher, Firpo-Triplett, & Buchting, 2013; Odden Archibald, Fermanich, & Gallagher, 2002), it may behoove program planners to require participation in an online community for a specified length of time. This way, even IHEA attendees who would not have voluntarily devoted time to discussions, webinars, or other online activities could have access to more organized, reliable follow-up.

According to the qualitative data, a fairly common barrier among interview participants was a lack of access to K-12 schools. Nearly 20% of IHEA attendees interviewed stated that weak relationships with K-12 schools or a sense of mistrust among K-12 administrators had been a significant barrier to making improvements in their school health teacher education programs,
or to providing training and services to K-12 schools. One participant stated, “I think the one thing we probably have run into, (…) in our state with the political stuff going on, it has taken away the ability for the University to work with K-12 programs because right now all the K-12 schools are having to adjust to the common core teaching standards. And so they’re spending all their time on that versus trying to get new curriculum, or working with us.”

Another participant made the following statement, referring to attempts to assist local schools by using the SHI to create an action plan to help improve the district’s Whole School, Whole Community, Whole Child. “I couldn’t get them to buy into it for some reason. They thought I was using them as part of a research project and was planning to come up with some sort of proposal and make it public knowledge.”

On the same topic, another participant said, “The thing that is probably most problematic is the resistance of school health personnel to be 'graded' on the SHI. They worry that it will reflect poorly on their schools. I think there really needs to be some effort to get out and communicate that this is just a health assessment. I know that would really help. I know when my students go out into the schools they broach the subject by explaining in their introductory narrative that this is just a spot check. It is just for the benefit of the school, so they can identify things they are doing well that you can share with your community, and then highlight some areas where you might consider improvement.”

Several of the participants suggested that it may be helpful for the CDC or the ACS to reach out to K-12 school administrators and provide them with names of nearby institutions and affiliated IHEA trainees who could be of service to local K-12 districts. Another participant suggested that it may be helpful to provide training to IHEA attendees on how to better communicate with K-12 administrators, and possibly on how to train school health teacher candidates to more effectively approach administrators with ideas or suggestions for improving the health of their schools. This participant stated, “So often I hear people say things like, 'I’m just a PE teacher.' And I think that’s a real problem when people don’t feel like they have enough authority as a professional to speak. I heard it over and over and over. (…) These people (K-12 educators) don’t know how to communicate. They’re not confident communicators.” Training
focused on improving communication skills could help empower school health faculty members and K-12 school health educators to intensify the impact of IHEA.

**Delimitations**

This study excluded certain IHEA attendees, such as graduate students who are not yet working in a school health teacher education program, but plan to teach school health teacher education courses in the future. Although the opinions of these attendees may have provided helpful suggestions for improvements to future IHEA trainings, they have not been included here because these individuals are not yet in a position to have an impact on pre-service teachers. The goal of this study is to assess the impact of IHEA trainings on teacher preparation programs.

Additionally, this study did not use individuals from the sampling frame to determine the online survey instrument’s stability reliability. Because the sampling frame was relatively small, using individuals from this pool of potential participants would have only further reduced the frame.

**Limitations**

This study utilized self-reported data to assess the effectiveness of a professional development program. While all participants were assured that their responses would be kept strictly confidential, it is possible that some of the participants responded to items in ways that they perceived to be more socially desirable than the truth. Additionally, because participants were fully informed of the purpose of the study, it is possible that participation rates and responses were affected by the participants’ personal interest in the outcome of the study. In other words, IHEA attendees who enjoyed their time at IHEA and felt that it was worthwhile and effective may have been more inclined to participate, and may also have been more inclined to provide more extremely positive responses than they might if they were unaware that the results of the study could be used to make decisions regarding IHEA funding, or to make changes to the format of IHEA. Potential participants who were indifferent regarding the future of IHEA may have been more likely to decline to participate, resulting in non-response bias.

**Future Research**

In the event that future IHEA trainings are implemented, future research could focus on
the effects of any changes made to the format of the conference. The effects of adding an online support network or intentionally targeting less experienced school health faculty for participation in the IHEA could be explored through ongoing program evaluation. Future research could also explore strategies for addressing the most common barriers to improving school health teacher preparation program quality, such as strategies for more successful collaboration with K-12 schools.

REFERENCES


FIGURES

Figure 1

Proportion of Academy Attendees Who Made Changes in Each Topic Area (by percent)

Figure 2

Proportion of Academy Attendees Covering Academy Topics in Their School Health Teacher Preparation Programs (by percent)
# TABLES

## Table 1

**Code Frequencies for Methods of Academy Topic Integration**

<table>
<thead>
<tr>
<th>Code</th>
<th>Method of Integration</th>
<th>SHI</th>
<th>CEHC</th>
<th>NHES</th>
<th>HEA</th>
<th>HECAT</th>
<th>HAA</th>
<th>SBSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Devoting lecture or discussion time to a CDC tool or resource.</td>
<td>24</td>
<td>29</td>
<td>19</td>
<td>12</td>
<td>15</td>
<td>19</td>
<td>12</td>
</tr>
<tr>
<td>2</td>
<td>Providing students with documents or hard copies of a CDC tool or resource.</td>
<td>7</td>
<td>7</td>
<td>3</td>
<td>1</td>
<td>8</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>Showing students the online version of a CDC tool or resource.</td>
<td>6</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>4</td>
<td>Creating an in-class learning activity to teach a CDC tool or resource.</td>
<td>13</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>10</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>Integrating an activity that was used in an IHE Academy session.</td>
<td>6</td>
<td>9</td>
<td>0</td>
<td>4</td>
<td>5</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Creating a graded assignment or other form of assessment that directly assesses students’ abilities to utilize a CDC tool or resource.</td>
<td>10</td>
<td>14</td>
<td>12</td>
<td>7</td>
<td>10</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>Integrating a CDC tool or resource into the field experience or practicum.</td>
<td>8</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>Participant is uncertain how a CDC tool or resource is being covered, but is certain that a colleague covers it in a course that he or she teaches.</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>5</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>A CDC tool or resource has been used as a springboard for new research.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

---

**Abbreviation Key**

- **School Health Index = SHI**
- **Characteristics of Effective Health Curricula = CEHC**
- **National Health Education Standards = NHES**
- **Health Education Curriculum Analysis Tool = HECAT**
- **Link Between Health and Academic Achievement = HAA**
- **Health Education Assessment = HEA**
- **School Based Surveillance Systems = SBSS**
### Table 2

**Code Frequencies for Additional Program Changes Made**

<table>
<thead>
<tr>
<th>Code</th>
<th>Change</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Greater involvement in outreach efforts, such as conference presentations and in-service trainings provided to other school health professionals</td>
<td>17</td>
</tr>
<tr>
<td>2</td>
<td>Addition of new courses to the curriculum</td>
<td>8</td>
</tr>
<tr>
<td>3</td>
<td>Altering existing courses to make them more content-specific</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>Using the CDC tools and resources in courses for non-school health majors, such as community health majors, counseling majors, etc.</td>
<td>8</td>
</tr>
<tr>
<td>5</td>
<td>No additional changes made</td>
<td>11</td>
</tr>
<tr>
<td>6</td>
<td>Creation of a new health major or health minor</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>Addition of new field experiences</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>Using a CDC tool or resource for grant writing or advocacy efforts</td>
<td>4</td>
</tr>
<tr>
<td>9</td>
<td>Checking the entire program curriculum for gaps that might be filled using the CDC tools and resources</td>
<td>3</td>
</tr>
</tbody>
</table>

### Table 3

**Code Frequencies for Barriers to Implementing Program Changes**

<table>
<thead>
<tr>
<th>Code</th>
<th>Barrier</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lack of time to cover content</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>Lack of personnel</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>Lack of administrative support</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>Lack of support from colleagues</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>Budget cuts or lack of funding</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>Decreasing enrollment</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>Cuts in the number of health education courses offered</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>Change in participant’s job or professional role</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>Lack of follow-up after Academy training, or uncertainty about how to proceed</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>Weak or unhealthy relationships with local school districts, resulting in difficulty gaining entry into the schools to provide in-service training, or to place teacher candidates in the field.</td>
<td>10</td>
</tr>
<tr>
<td>11</td>
<td>Change in program focus</td>
<td>2</td>
</tr>
<tr>
<td>12</td>
<td>Political resistance</td>
<td>1</td>
</tr>
<tr>
<td>13</td>
<td>No barriers to change</td>
<td>13</td>
</tr>
</tbody>
</table>
Table 4

Sample IHE Academy Agenda

<table>
<thead>
<tr>
<th>Day 1:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session I: Linking Student Health with Academic Achievement: Exploring and Using the Evidence to Support Teaching and Learning in School Health</td>
</tr>
<tr>
<td>Session II: The School Health Index: Practical Applications for Pre-Service and In-Service School Health Education Students</td>
</tr>
<tr>
<td>Session III: Health Education Curriculum Analysis Tool (HECAT): Practical Applications for Pre-Service School Health Education Students</td>
</tr>
<tr>
<td>Session IV: School-Based Surveillance Systems: Practical Applications for Pre-Service and In-Service School Health Educators</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Day 2:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session I: Health Education Student Assessment for Elementary, Middle, and High School Levels</td>
</tr>
<tr>
<td>Session II: Characteristics of Effective Health Education Curricula</td>
</tr>
<tr>
<td>Session III: The National Health Education Standards and Skills</td>
</tr>
</tbody>
</table>
Chapter 3

The Impact of Faculty Members' Perceived Benefits of Change on the Integration of Online School Health Tools and Resources: A National Assessment

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This study was funded by the American Cancer Society, a co-sponsor of the Institutes for Higher Education Academy.
November 6, 2015

Dear Dr. Gambescia:

Attached please find a manuscript I am submitting for publication in *Pedagogy in Health Promotion: The Scholarship of Teaching and Learning*. The purpose of the article entitled “The Impact of Faculty Members' Perceived Benefits of Change on the Integration of Online School Health Tools and Resources: A National Assessment” was to determine the magnitude of the impact of faculty members’ perceived benefits of change on their likelihood of integrating school health tools and resources available online through the CDC into their school health teacher preparation programs. This article represents original research, and focuses on curriculum and course design. The article explores factors that may encourage faculty members to adopt current best practices and integrate CDC tools and resources, such as the School Health Index and the Health Education Curriculum Analysis Tool, into their school health teacher preparation curricula. Training pre-service school health educators in the use of these tools and resources could potentially improve the quality of school health education programs in K-12 schools on a national scale.
Co-authors assisted with study design, recruitment of participants, and editing. I am submitting for a standard issue of *PHP*. The manuscript represents original work and will not be submitted elsewhere. IRB approval for this study was received in March of 2015. This study was sponsored by the American Cancer Society, a co-sponsor of the Institutes for Higher Education Academy, which is a conference that provided school health faculty members from across the country with training in the use of the CDC’s school health tools and resources. I have read and understand the *Guidelines for Prospective Authors*.

If you need additional information please contact me by telephone at 419-345-9186 or e-mail at Amelia.huelskamp@utoledo.edu. Upon acceptance, the publishers may alter formatting as necessary.

I thank the editor and reviewers in advance for their time and consideration.

Sincerely,

Amelia Huelskamp, PhD
Instructor, Corresponding Author
Abstract

Purpose. The purpose of this study was to determine whether school health faculty members who had attended the Institutes for Higher Education (IHE) Academy were more likely to implement course or curricular changes in their school health teacher preparation programs based on perceived benefits of integrating online tools and resources provided through the Centers for Disease Control and Prevention. Methods. An online survey was used to determine the number of program changes participants made following IHE Academy training, and the magnitude of participants' perceived benefits. The magnitude of perceived benefits was measured using a Likert-type set of scales. All 151 eligible school health education faculty who had attended an IHE Academy were recruited for the study. The participation rate was 68% (n = 103). A follow-up phone interview was used to gather details, such as examples of participants' perceived benefits, and examples of course and curricular changes. Results. Of the five perceived benefits included in the survey, only two were found to have a weak positive relationship to the number of program changes implemented by participants, including improved teacher candidate content knowledge ($r = .204, \alpha = .05$) and improved utility of coursework ($r = .200, \alpha = .05$). Conclusions. Perceived benefits are unlikely to be a factor in improving participants' likelihood of integrating the CDC tools and resources from IHE Academy training into their school health teacher preparation programs. Recommendations. More research is needed to determine whether other factors might have a greater impact on the implementation of program changes, such as the severity of participants' perceived barriers.

Word Count: 3,575
Introduction/Literature Review

Professional development (PD) is a commonly used tool for attempting to build the skills and effectiveness of in-service educators as they work to meet the needs of increasingly diverse student populations in an ever-changing educational climate. PD not only offers opportunities to re-align teaching strategies with best practices throughout the duration of a teaching career, it also offers the advantage of flexibility. PD includes a broad range of options, such as inexpensive one-shot seminars and online learning communities. Some school districts may see these inexpensive forms of in-service PD as their only option for improving the quality of education, because research suggests that many K-12 schools report having extremely limited resources that they can dedicate to the development of pedagogy (Kardos, Johnson, Peske, Kauffman, & Liu, 2001; Makopoulo & Armour, 2011; Schlager & Fusko, 2003).

Unlike teachers working in content areas that have historically been included in the common core such as math and reading, health educators often work in isolation, as they may be the only health educator in the building. PD could be even more vital in health education than it is in other content areas due to inadequate support for health educators within districts. A health educator working alone in a building or district may have no one with whom he or she can share ideas and techniques.

For faculty members who work in teacher preparation, PD is equally vital. Some faculty members working in teacher preparation programs have not worked in K-12 schools for extended periods of time, and others may never have worked in K-12 schools prior to their employment in academia. These faculty members may be far enough removed from the changing context of K-12 schools that they experience difficulties in
maintaining the quality and relevance of their teacher preparation coursework. Teacher candidates graduating from programs that are no longer aligned with best practices may struggle to teach effectively in K-12 classrooms. Faculty members working in teacher preparation could benefit tremendously from ongoing PD, as this could be a promising option for aligning programs with the expectations of K-12 administrators and the increasingly stringent standards of state departments of education.

Unfortunately, it is extremely difficult to determine the effectiveness of PD. Programs that produce results are usually too intensive (and expensive) to be implemented multiple times across different contexts. Thus, it is problematic to prove their odds of success in other contexts (Guskey, 2000). Many issues have the potential to undermine PD effectiveness, but for teacher educators, a significant compounding factor is the amount of time required to research and publish enough to gain tenure and promotion. This requirement, of course, reduces the amount of time that faculty are able to dedicate to pedagogical development (Hickson & Wilson, 2009; Korthagen, Loughran, & Lunenberg, 2005; Martinez, 2008). Some research-focused universities may even find lower quality teaching admissible, even when the quality of teaching begins to have a negative impact on the success of students (Drew & Klopper, 2014; Hickson & Wilson, 2009; Martinez, 2008). Teacher educators are typically expected to stay abreast of the most recent best practices in pedagogy so they can provide the best possible training for their teacher candidates, and yet, they are also typically expected to publish just as much as their counterparts in other departments. The demands of both sets of expectations can be truly daunting.
The CDC has recognized the need for instructional supports for school health teacher educators, and offers a number of resources that school health teacher educators should strongly consider integrating into their teacher preparation programs so that their pre-service teachers can be familiarized with the use of these tools. The *School Health Index*, *School Health Profiles*, the *Health Education Curriculum Analysis Tool*, the *National Health Education Standards*, and *Characteristics of an Effective Health Education Curriculum* are all available online, in addition to program evaluation tools, opportunities to register for training workshops, and links to a variety of resources for assorted youth health issues and their respective risk and protective factors. These tools and resources are of tremendous value to the field of school health education because they facilitate the teaching and learning process by assisting K-12 health educators in meeting the standards of the profession. They also provide research-based guidance in increasing the effectiveness of instruction. With training in the use of these tools and resources, whether through pre-service teacher preparation, or through in-service training, school health educators could potentially improve the quality of K-12 health education in the United States, thereby improving health and academic outcomes for America’s youth.

The Institutes for Higher Education (IHE) Academy was designed to help health education teacher education (HETE) faculty members further develop their knowledge and skills in supporting pre-service teachers by learning to utilize the tools and resources available to them through the CDC. The IHE Academy also addresses additional topics, including assessment, developmentally appropriate practices, and differentiated instruction, and the conference provides HETE faculty with a rare opportunity to network with other HETE faculty members from across the country. The PD that the IHE
Academy provides to HETE faculty members could be of tremendous value to their respective institutions because the knowledge and skills they build during the conference can aid faculty in acquiring or maintaining accreditation. Accredited teacher preparation programs have been shown to produce more teacher candidates with passing scores on licensing exams than non-accredited teacher preparation programs (Wilson & Floden, 2003). The Council for Accreditation of Educator Preparation (CAEP) uses the eight school health education standards endorsed by the American Association of Health Education (AAHE) for accreditation purposes. Unfortunately, research indicates that some teacher preparation programs do not appear to consistently address these standards (Smith, Potts-Datema, & Nolte, 2005). The IHE Academy included sessions designed to address key elements from all eight of the standards, thereby assisting faculty in improving their students' abilities to achieve these standards. For example, one session that focused on the link between student health and academic achievement and familiarized HETE faculty with sources of evidence to support that link gives HETE faculty tools that can be passed along to their education students, who will be expected to advocate for comprehensive school health education and the Whole School, Whole Community, Whole Child Model (Standard 8).

Significant changes in K-12 health education over the last decade make it imperative for teacher educators to ensure that HETE programs stay up-to-date. HETE faculty members who have been working for lengthy durations outside of K-12 settings may not be familiar with current best practices in the field, in spite of their expertise in academia. Thus, it is possible that HETE faculty could drastically improve the quality of HETE programs by engaging in ongoing PD, such as that provided by the IHE Academy,
and by collaborating with K-12 teachers to keep abreast of best practices (Helterbran, n.d.; Smith et al., 2005). While the IHE Academy has been found effective in facilitating more effective teaching practices within HETE programs, there is an interest in further improving the effectiveness of the training by identifying factors that contribute to faculty member motivation to integrate CDC tools and resources into school health teacher preparation curricula.

**Purpose**

The purpose of this study was to determine whether school health faculty members who had attended the Institutes for Higher Education Academy were more likely to implement course or curricular changes in their school health teacher preparation programs based on their perceived benefits of integrating online tools and resources provided through the CDC. Perceived benefits initially included improvements in teacher candidate skill level, teacher candidate content knowledge, teacher candidate performance in field placements, utility or relevance of coursework, and faculty member confidence in teaching school health teacher preparation coursework.

**Methods**

This mixed methods study involved the use of an online survey instrument to determine the number of IHE Academy topics that each participant had integrated into their school health teacher preparation program since attending the IHE Academy. The survey included a 5-item perceived benefits scale. The instrument was developed using Qualtrics, an online survey design tool. The instrument was piloted with individuals who would have been included in the sample population were it not for their involvement with this study or their involvement in facilitating the IHE Academy.
The survey included a set of Likert-type scales intended to measure perceived benefits, internal consistency reliability was tested for this set of scales using Cronbach’s alpha. Given that the Cronbach’s alpha for this set of scales was unusually high (.986), one item was subsequently removed from the scale (perceived improvement in teacher candidate skill level), as it correlated perfectly with another item (perceived improvement in teacher candidate content knowledge, $\alpha=1.0$). Such a high correlation between survey items can be indicative that the items, though worded differently, have been interpreted by participants to mean the same thing. Removal of the item referring to perceived improvement in teacher candidate skill level resulted in a score of .979. Although this score is still considered unusually high, because correlation coefficients for all other scale items were less than 1.0, but greater than .9, the remaining items were included in data analysis. Content validity and face validity were assessed by evaluation stakeholders.

Due to the small size of the study population, which included only the 151 school health education faculty members who have attended at least one IHE Academy, every eligible member of the study population was recruited to participate in this study. Individuals who were not eligible to participate included past IHE Academy attendees who had not been involved in teaching school health education coursework since their attendance, and past IHE Academy attendees who were involved in the facilitation of this study. 103 eligible IHE Academy attendees completed the online survey for a final participation rate of 68%.

The researcher made initial contact with each past IHE Academy attendee via e-mail, using contact information furnished by the ACS. Potential participants were sent individualized links to the online survey, allowing survey responses to be linked to each
participant. Following completion of the online survey, each participant's responses were used to adjust the follow-up interview questions. Interview questions were designed to elicit participant examples of any changes made to their school health teacher preparation programs, as well as examples of any perceived benefits they had reported. Responses to the interview questions were triangulated with each participant's survey responses. The participation rate for the qualitative data collection phase was lower, with approximately half of those individuals who completed the online survey also completing the follow-up interview (n = 54).

All quantitative data was exported from Qualtrics into Statistical Package for the Social Sciences (SPSS). Descriptive statistics (frequencies, means, range of scores, standard deviations) were used to describe characteristics of the participants’ school health education programs, such as number of school health education majors and minors, number of credit hours required to obtain a school health education license, school health education courses offered, and number of faculty members in the department. Descriptive statistics were also used to describe the impact of IHE Academy training on school health teacher education programs, including the nature of program changes implemented, such as curricular and course modifications, as well as the number of students impacted by these changes. Finally, the average number of individuals trained by each participant through any form of outreach, such as national, state, or regional conference presentations, was used to estimate the downstream impact of IHE Academy training on school health faculty and K-12 health educators.

Additionally, inferential statistics were used to determine whether the number of implemented program changes related to IHE Academy training varied by the
participant’s perceived benefits related to implementing those changes. Perceived benefits that were analyzed included improved faculty member confidence in teaching school health teacher preparation coursework, improved relevance or utility of school health teacher preparation coursework, and improvements in teacher candidate content knowledge and performance in field placements. Inferential statistics were also used to determine whether any relationship exists between the total number of implemented program changes related to the participants’ IHE Academy training and the participants’ perceived benefits associated with those program changes. The magnitude of IHE Academy impact was determined for each attendee’s institution by identifying the number of tools and resources included in IHE Academy training that are currently covered in the attendee’s institution, but were not previously covered prior to the attendee’s participation in the training, or were previously covered in less depth.

Results

The mean number of program changes reported by participants was 3.58, with a standard deviation of 2.18 (see Table 1). Only 13% of survey respondents (n = 12) reported having implemented no changes at all. In the qualitative data collection phase, one participant reported that he had, in fact, made changes that he had not reported when completing the online survey. Interestingly, of the 11 participants who reported no changes implemented since their IHE Academy attendance, only one participant reported absolutely no perceived benefits. The remaining ten participants reported that although they had integrated none of the tools and resources included in IHE Academy training, their Academy attendance had still resulted in at least small improvements in teacher candidate skill levels, content knowledge, and field placement performance, as well as
relevance of coursework and self-confidence in teaching school health teacher preparation coursework. Although this initially seemed contradictory, those ten participants also reported at least a moderate improvement in their self-confidence in teaching school health teacher preparation coursework, so it could be that these participants perceived other benefits as a result of their own improved self-confidence.

Of the five perceived benefits included in the survey, only two (improved teacher candidate content knowledge and improved utility of coursework) were found to have a weak positive relationship to the number of program changes implemented by participants as a direct result of their training. Improved teacher candidate content knowledge had the strongest relationship ($r = .204, \alpha = .05$). The relationship between improved utility of coursework and number of changes implemented was even weaker ($r = .200, \alpha = .05$). Correlation coefficients for the remaining three perceived benefits (improved teacher candidate skill level, improved teacher candidate field placement performance, and improved faculty member confidence) indicated no relationship between the perceived benefit and the number of changes implemented. Each of the remaining perceived benefits had correlation coefficients ranging between .151 and .170 (see Table 2). Correlations between each of the perceived benefits were very strong. For example, perceived improvement in the relevance or utility of coursework correlated strongly with perceived improvement in teacher candidate content knowledge ($r = .728, \alpha = .05$).

Conclusions

Given that only two of the five perceived benefits in the perceived benefits scale were found to be weakly associated with the number of program changes implemented
since IHE Academy training, perceived benefits are unlikely to be a factor in improving participants' likelihood of integrating the CDC tools and resources from IHE Academy training into their school health teacher preparation programs. Participants who reported large improvements in one area, such as teacher candidate content knowledge, were also likely to report large improvements in other areas, such as relevance of coursework and faculty member self-confidence in teaching school health teacher preparation coursework. Even participants who made few or no changes were likely to report at least moderate gains in these areas. This may suggest that IHE Academy participants were likely to feel more knowledgeable and more competent following their training, and thus more likely to view themselves as effective preparers of K-12 health educators, resulting in perceived gains in most or all of the categories included in the perceived benefits scale, despite having made few or no changes to their school health teacher preparation programs.

**Recommendations**

Several limitations may have impacted the results of this study. First, this study uses self-reported data to assess the effectiveness of a professional development program that was fully funded by the ACS and the CDC. Although all participants were assured that their responses would be kept strictly confidential, it is possible that some of the participants responded to items in ways that they perceived to be more socially desirable than the truth. Additionally, because participants were fully informed of the purpose of the study, it is possible that responses were affected by the participants’ personal interest in the outcome of the study. In other words, IHE Academy attendees who enjoyed their time at the IHE Academy and felt that it was worthwhile and effective may have been
more inclined to participate, and may also have been inclined to provide more extremely positive responses than they might if they were unaware that the results of the study could be used to make decisions regarding future IHE Academy funding, or to make changes to the format of the IHE Academy. Conversely, participants who were indifferent regarding the future of the IHE Academy, or who did not enjoy their time at the IHE Academy may have been less likely to agree to participate, resulting in non-response bias.

Additionally, some delimitations should be mentioned. This study utilized mixed methods to quantify the magnitude of the IHE Academy’s impact on the quality of school health teacher preparation programs, while also gathering qualitative data to provide examples of changes made to specific programs or courses, and insights into participants’ quantitative responses. While the use of mixed methods for this research allowed for the collection of data that may have been missed with the use of only one method, it also had the potential to complicate data analysis, as some of the qualitative findings contradicted quantitative findings (De Lisle, 2011). For example, some of the IHE Academy attendees who agreed to participate in the study were already utilizing many of the skills and resources emphasized in the IHE Academy training. Some of these participants indicated in quantitative data collection that very few changes (or no changes) had been made to their professional practices as a result of their IHE Academy training, but they also provided numerous examples of how the IHE Academy training benefited their program and their students. As the study sought to determine whether the IHE Academy filled a gap in knowledge and training that may otherwise have gone uncorrected, a retrospective component was included in the survey instrument to determine which of the tools and
resources included in IHE Academy training had already been integrated into the school health education program at each institution prior to each participant’s IHE Academy attendance.

This study excluded certain IHE Academy attendees, such as graduate students not yet working in a school health teacher education program. Although the opinions of these attendees may have provided helpful suggestions for improvements to future IHE Academy trainings, they were not included here because they are not yet in a position to have an impact on pre-service teachers, and the goal of this study is to assess the impact of IHE Academy trainings on teacher preparation programs. Some individuals were also excluded from the study because they do not work with future K-12 health educators. Some IHE Academy attendees work in other areas of health education, such as the public health sector, or in K-12 schools.

Additionally, this study did not use individuals from the sampling frame to determine the online survey instrument’s stability reliability. Because the sampling frame was already relatively small, using individuals from this pool of potential participants would only have further reduced the frame.

While the future of the IHE Academy is uncertain at this point, the results of this study suggest that attempting to increase future participants' perceived benefits would be unlikely to improve the rate of integration of CDC tools and resources into school health teacher preparation programs. Because a majority of the study participants reported large to moderate improvements for all items on the perceived benefits scale, regardless of the number of program changes they had implemented, more research is needed to determine
whether other factors might have a greater impact on the implementation of program changes, such as participants’ perceived barriers.

Due to the fact that perceived barriers were not explored through the use of Likert-type scales, as were perceived benefits, it is not possible to correlate the severity of perceived barriers with participants' likelihood of having implemented program changes. Perceived barriers were explored qualitatively during follow-up phone interviews. Frequencies for specific perceived barriers were tracked, however, the degree to which each participant perceived one or more of those barriers was not explored. Twelve distinct barriers emerged from the interview transcripts, and of those twelve, lack of time to cover IHE Academy topics was by far the most common with 37% of interviewees reporting that this had been an issue for them (see Table 3). The next largest group (24%) of interviewees reported encountering no barriers at all. Weak relationships with K-12 schools was reported as a barrier by 19% of interviewees, but all ten of the remaining perceived barriers were reported as having been encountered by very small numbers of participants, ranging from just 1.8% (n = 1) to 7.4% (n = 4). Only 10% of participants reported having made zero changes to their school health teacher preparation programs following their IHE Academy training, so it is clear that the majority of those who reported perceived barriers were still successful in implementing program changes, despite any challenges they feel they encountered. Thus, exploring the severity of each participant's perceived barriers could reveal a relationship between those barriers and the participant's likelihood of implementing program changes based on IHE Academy training.
References


### Tables

#### Table 1

**Mean and Standard Deviation for All Study Variables**

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Deviation</th>
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<tr>
<td># of Changes</td>
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<td>2.181</td>
</tr>
<tr>
<td>Skill</td>
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<td>.935</td>
</tr>
<tr>
<td>Content</td>
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<td>.953</td>
</tr>
<tr>
<td>FP Performance</td>
<td>2.96</td>
<td>1.043</td>
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<tr>
<td>Utility</td>
<td>3.64</td>
<td>1.049</td>
</tr>
<tr>
<td>SE</td>
<td>3.80</td>
<td>1.098</td>
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#### Table 2

**Correlations Between Number of Program Changes and Perceived Benefits**

<table>
<thead>
<tr>
<th></th>
<th># of Changes</th>
<th>Skill</th>
<th>Content</th>
<th>FP Performance</th>
<th>Utility</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
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<td>.204</td>
<td>.153</td>
<td>.200</td>
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<tr>
<td>Skill</td>
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<td>1.000</td>
<td>.798</td>
<td>.604</td>
<td>.702</td>
<td>.653</td>
</tr>
<tr>
<td>Content</td>
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<td>.798</td>
<td>1.000</td>
<td>.663</td>
<td>.728</td>
<td>.634</td>
</tr>
<tr>
<td>FP Performance</td>
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<td>.604</td>
<td>.663</td>
<td>1.000</td>
<td>.534</td>
<td>.458</td>
</tr>
<tr>
<td>Utility</td>
<td>.200</td>
<td>.702</td>
<td>.728</td>
<td>.534</td>
<td>1.000</td>
<td>.680</td>
</tr>
<tr>
<td>SE</td>
<td>.151</td>
<td>.653</td>
<td>.634</td>
<td>.458</td>
<td>.680</td>
<td>1.000</td>
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### Table 3

**Code Frequencies for Barriers to Implementing Program Changes**

<table>
<thead>
<tr>
<th>Code</th>
<th>Barrier</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lack of time to cover content</td>
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</tr>
<tr>
<td>2</td>
<td>Lack of personnel</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>Lack of administrative support</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>Lack of support from colleagues</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>Budget cuts or lack of funding</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>Decreasing enrollment</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>Cuts in the number of health education courses offered</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>Change in participant’s job or professional role</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>Lack of follow-up after Academy training, or uncertainty about how to proceed</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>Weak or unhealthy relationships with local school districts, resulting in difficulty gaining entry into the schools to provide in-service training, or to place teacher candidates in the field.</td>
<td>10</td>
</tr>
<tr>
<td>11</td>
<td>Change in program focus</td>
<td>2</td>
</tr>
<tr>
<td>12</td>
<td>Political resistance</td>
<td>1</td>
</tr>
<tr>
<td>13</td>
<td>No barriers reported</td>
<td>13</td>
</tr>
</tbody>
</table>
Chapter 4

RESULTS and RECOMMENDATIONS

The results of this study on the impact of the IHE Academy on health education teacher preparation programs are described in the following sections of this chapter: Response Rate, Professional Characteristics of the Respondents, Characteristics of Respondents’ Institutions, Impact of the IHE Academy on Outreach Efforts, Integration of IHE Academy Topics, Methods of Integration, Improved Teacher Candidate Performance, Improved Faculty Member Confidence, Additional Program Changes, Barriers to Implementing Changes, Most Memorable Aspects of the Academy, and Most Useful Aspects of the Academy. The results are then discussed in relation to the hypotheses. A summary of the findings follows the Results section, and the Recommendations section discusses how these findings might be applied to the planning and implementation of future IHE Academy trainings.

Response Rate

There were 151 IHE Academy participants recruited to participate in this study. Although approximately 200 individuals have attended at least one IHE Academy, approximately 50 of these individuals were ineligible to participate, either because they had not been involved in health education teacher preparation since their attendance, or because they had been involved in the planning or implementation of the IHE Academy. Of the eligible 151 IHE Academy attendees, 103 individuals completed the online survey (68%).

Professional Characteristics of the Respondents

A majority of the respondents had fewer than fifteen years of experience teaching at
the university level (57%). A small group (15%) had more than 25 years of experience. A plurality of respondents (32%) were Associate Professors. A majority of respondents taught a School Health Methods course in the past year (64%), whereas 40% taught a School Health Programs course, and 29% taught an Introductory School Health Methods course. A plurality of respondents (32%) devoted no more than 25% of their teaching load to school health education courses in the past year, while 26% devoted between 76% and 100% of their teaching loads to school health education courses.

**Characteristics of Respondents’ Institutions**

A majority of the respondents were employed at institutions with fewer than 10,000 enrolled students (54%), whereas 25% of the institutions had greater than 20,000 enrolled students. 54% of respondents’ institutions had a health education major, while 22% had a minor only, and the remaining 23% offered both a major and a minor. A plurality of the institutions (38%) did not offer physical education licensure, but 35% of institutions required that students dual major in health education and physical education, while the remaining 27% offered optional physical education licensure in conjunction with their health education programs. A plurality of respondents’ institutions (31%) had two full-time school health education faculty members, whereas 4% did not have any full-time school health education faculty members. A majority of respondents’ institutions (56%) have graduated fewer than 30 school health education majors over the last five years.

**Impact of the IHE Academy on Outreach Efforts**

The majority of respondents (58%) stated that they had presented at least one IHE Academy topic at a national, state, or regional conference. The number of presentations reported ranged from 1 to 20 (see Table 1). More than half of those who reported that
they had presented at a conference (61%) stated that their presentations had covered the School Health Index (SHI), the National Health Education Standards (NHES), and the Health Education Curriculum Analysis Tool (HECAT). Of those who had presented at a conference, 56% stated that their presentations had reached a minimum of 50 people. Nearly half (47%) of respondents indicated that they had provided in-service training to other school health faculty, or to K-12 health education teachers. The number of in-service trainings provided ranged from 1 to 30 (see Table 2). A large majority of those who provided in-service training covered the HECAT (65%), while a majority also covered the Characteristics of an Effective Health Education Curriculum (58%), and the NHES (56%). Most respondents (56%) reported that the trainings they provided reached fewer than 50 people, whereas the remaining 44% of respondents reported that they had trained more than 50 people in the use of at least one CDC tool or resource.

**Table 1**

**Number of Presentations Made by IHE Academy Attendees**

<table>
<thead>
<tr>
<th>Number of Presentations</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
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<th>13</th>
<th>14</th>
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<th>20</th>
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<td>F</td>
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<td>13</td>
<td>13</td>
<td>3</td>
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<td>1</td>
<td>1</td>
<td>2</td>
<td>0</td>
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<td>0</td>
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<td>0</td>
</tr>
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</table>

**Table 2**

**Number of In-Service Trainings Provided by IHE Academy Attendees**

<table>
<thead>
<tr>
<th>Number of In-Service Trainings Provided</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
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<td>2</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
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</table>
Integration of IHE Academy Topics

Although integration rates for each of the IHE Academy topics varied widely (see Table 3), a large majority of IHE Academy attendees made changes to their school health teacher preparation programs in order to integrate a number of CDC tools and resources, including the SHI, the Characteristics of an Effective Health Education Curriculum (Characteristics), the NHES, Health Education Assessment (HEA), the HECAT, the link between health and academic achievement (HAA), and school-based surveillance systems (SBSS). Of those surveyed, 61% reported that they had either started covering the SHI, or had increased coverage of that topic, whereas 39% reported that they were either already covering the SHI prior to their IHE Academy training, or they were still not covering it in any way. About two thirds of respondents (66%) reported that they had either started covering the Characteristics, or had increased coverage, whereas 34% reported that they had made no changes to integrate this topic, or to supplement existing coverage. Of those surveyed, 42% reported that they had started covering the NHES, or had increased coverage, whereas 58% indicated that they had already integrated this topic prior to their IHE Academy training. Nearly half of respondents (47%) stated that they had either integrated HEA, or had increase coverage of the topic, whereas 53% reported that no changes had been made. More than half of those surveyed (56%) reported that they had integrated or increased coverage of the HECAT, and 44% reported that they had neither integrated the HECAT, nor increased coverage of the tool. Nearly half of respondents (46%) reported that they had integrated the link between health and academic achievement into their curricula, whereas 54% reported that they were already covering this topic, or had yet to integrate it. Almost half of respondents (46%) stated they had integrated SBSS, or had supplemented existing coverage, whereas 54% reported that they had made no changes in coverage of SBSS. Only 10% of respondents reported having made absolutely no changes to their school health teacher preparation programs following their IHE Academy attendance. The remaining 90% of
respondents made changes to integrate or increase coverage of at least one tool or resource that was covered at the IHE Academy.

Table 3

Proportion of IHE Academy Attendees Who Made Changes to Their School Health Teacher Preparation Programs

<table>
<thead>
<tr>
<th>Tool or Resource</th>
<th>Started Covering Tool N (%)</th>
<th>Increased Coverage N (%)</th>
<th>No Change N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHI Characteristics</td>
<td>25 (24)</td>
<td>38 (37)</td>
<td>40 (39)</td>
</tr>
<tr>
<td>NHES</td>
<td>29 (28)</td>
<td>39 (38)</td>
<td>35 (34)</td>
</tr>
<tr>
<td>HEA</td>
<td>10 (10)</td>
<td>37 (36)</td>
<td>54 (52)</td>
</tr>
<tr>
<td>HECAT</td>
<td>30 (29)</td>
<td>28 (27)</td>
<td>44 (43)</td>
</tr>
<tr>
<td>HAA</td>
<td>14 (14)</td>
<td>32 (31)</td>
<td>57 (55)</td>
</tr>
<tr>
<td>SBSS</td>
<td>22 (21)</td>
<td>25 (24)</td>
<td>71 (69)</td>
</tr>
</tbody>
</table>

Perceived Benefits of Changes Made to School Health Teacher Preparation Curricula

A 5-item set of Likert-type scales was used to determine the magnitude of each participant’s perceived benefits of having implemented program changes as a result of their participation in the training. Perceived benefits included improvements in teacher candidate skill levels, teacher candidate content knowledge, teacher candidate performance in field placements, relevance or utility of coursework, and faculty member confidence in teaching school health teacher preparation coursework.

A series of Pearson correlations was used to determine whether any relationship existed between the magnitude of respondents’ perceived benefits and the number of CDC tools and resources integrated into each respondent’s school health teacher preparation program. No
statistically significant relationship was found between the number of integrated tools and resources and any of the perceived benefits included in the scale.

**Methods of Integration**

Methods of integration varied, with a total of nine distinct codes identified in the qualitative data collected through follow-up phone interviews. These included:

1. Devoting lecture or discussion time to a CDC tool or resource.
2. Providing students with documents or hard copies of a CDC tool or resource.
3. Showing students the online version of a CDC tool or resource.
4. Creating an in-class learning activity to teach a CDC tool or resource.
5. Integrating an activity that was used in an Academy session.
6. Creating a graded assignment or other form of assessment that directly assesses students’ abilities to utilize a CDC tool or resource.
7. Integrating a CDC tool or resource into students’ field experiences or practicum.
8. Participant is uncertain how a CDC tool or resource is being covered, but is certain that a colleague covers this in a course that he or she teaches.
9. A CDC tool or resource has been used as a springboard for new research.

In follow-up phone interviews, participants were asked to describe any changes they had made to their school health teacher preparation courses to incorporate each of the tools and resources that were indicated in their survey responses. Frequencies for these codes have been included in Table 4. For most participant responses, multiple codes were used, as most faculty members indicated that they cover a tool or resource using multiple methods.
Table 4

Code Frequencies for Methods of Integration of CDC Tools and Resources

<table>
<thead>
<tr>
<th>Tool</th>
<th>1</th>
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<th>3</th>
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<th>6</th>
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<th>9</th>
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<td>8</td>
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<td>3</td>
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<td>0</td>
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<td>8</td>
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<td>10</td>
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<td>1</td>
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<td>4</td>
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<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
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<td>4</td>
<td>0</td>
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</tbody>
</table>

**Improved Teacher Candidate Performance**

Interview participants were asked to provide examples of any changes they had noticed in their teacher candidates that suggest that the integration of CDC tools and resources into their school health teacher education programs has improved teacher candidate skill, content knowledge, and field placement performance. From participant responses, 7 codes were developed, including:

1. higher scores on the Praxis or other licensing exam.
2. higher numbers of teacher candidates finding employment after graduation.
3. increasingly positive teacher candidate feedback regarding the quality of coursework, quality of teaching, or the quality of the program.
4. higher levels of comprehension demonstrated by teacher candidates.
5. increasingly positive feedback from cooperating teachers regarding teacher
candidate performance in the field.

6. faculty members observing improved teacher candidate performance in teaching situations (either in the field or in peer teaching situations).

7. higher levels of teacher candidate participation in professional conferences.

Frequencies for these codes are included in Table 5. Multiple codes were used for many of the participants’ responses, as many participants indicated that they had noticed multiple signs of improvement in their teacher candidates.

Table 5

Code Frequencies for Improved Teacher Candidate Performance

<table>
<thead>
<tr>
<th>Codes</th>
<th>1</th>
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<td>10</td>
<td>31</td>
<td>4</td>
<td>20</td>
<td>2</td>
</tr>
</tbody>
</table>

Faculty members who participated in the interview most commonly stated that they had noticed higher levels of competency among teacher candidates when using the CDC tools and resources. A significant proportion also stated that they had observed improved performance in field placements and peer teaching situations, that teacher candidate scores on licensing exams had improved, and that teacher candidate feedback regarding the quality of coursework or the program in general had become increasingly positive. Regarding improved scores on the Praxis II exam, one participant said, “In our program here at our university, we have a 100% pass rate for the teacher certification exam, and other universities are calling us up and asking how we are doing that. That’s a new one, apparently, for them. So(…) I would like to think that what we have learned and what we
are putting into our practices from the Academy, that’s what has helped to
give us the success rate.”

Another participant spoke to the improvements she had witnessed among her
teacher candidates in their field placements.

“I think that using the SHI has allowed them to take more of a leadership role when
they’re doing their internships. You know, they have more of an understanding of some
areas that need improvement in their schools, and they can work with their cooperating
teacher or their principal. The Characteristics of Effective Health Curricula have also
been helpful. My students are now coming back to me and saying that their cooperating
teachers are not doing these things. There’s not really a lot that I can do to change what
the clinical teacher is doing, but at least my students are thinking about these things, and
they can address these things in the future. When they plan, they can address the
Characteristics, even though their clinical teacher might not be doing that.”

**Improved Faculty Member Confidence**

Faculty members who participated in the interview were also asked to provide
examples of how their own confidence levels had improved as a result of their training at
the Academy. A total of six codes were developed from the responses to this question,
including:

1. feeling better connected to other school health faculty at other institutions.
2. feeling as though his or her teaching practices have been validated.
3. feeling as though he or she has a better grasp or more knowledge of the CDC
tools and resources.

4. feeling as though he or she has more current information or more current statistics to share with teacher candidates.

5. feeling as though his or her teaching practices are now more aligned with current best practices.

6. feeling that he or she is better equipped to model effective teaching practices for teacher candidates.

Frequencies for these codes are included in Table 6.

Table 6

Code Frequencies for Improved Faculty Member Confidence

<table>
<thead>
<tr>
<th>Codes</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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<tr>
<td></td>
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<td>9</td>
<td>31</td>
<td>15</td>
<td>18</td>
<td>17</td>
</tr>
</tbody>
</table>

The most commonly stated reason for improved faculty member confidence was the knowledge gained in the Academy sessions. Many faculty members stated that they felt they now have a better grasp of the tools and resources, and are thus better equipped to train their teacher candidates in the use of those tools and resources.

Additional Program Changes

Faculty members participating in the interview were asked to describe any additional changes that may have been made to their school health programs as a result of their Academy training. Examples of additional changes included the addition of new courses, or altering existing courses to make them more content-specific for school health education. 9 codes were developed from the participants’ responses, and included:
1. greater involvement in outreach efforts, such as professional development for inservice K-12 health educators.
2. addition of new courses to the curriculum.
3. altering existing courses to make them more content-specific.
4. using the CDC tools and resources in coursework for non-school health majors, such as community health majors, counseling majors, physician’s assistants, etc.)
5. no additional changes made.
6. creation of a new health major or health minor.
7. addition of new field experiences.
8. using a CDC tool or resource for grant writing or advocacy efforts.
9. checking the entire program curriculum for gaps that might be filled using the CDC tools and resources.

Frequencies for these codes are included in Table 7.

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<th>Codes</th>
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The most commonly cited change not pertaining to the integration of Academy content into existing coursework was an increase in outreach efforts. Seventeen faculty members interviewed stated that they are now spending more time in K-12 schools to provide in-service training to school health educators, to implement the SHI and provide improvement plans, to implement new health programming, etc. One participant made the following statement concerning increased community outreach as a result of the
Academy training.

“Really all of the training I received at the Academy has really supported me to be more useful as a professional development provider for in-service teachers and in-service school professionals. And since the Academy, I am now serving on two district wellness committees, and I have had an instrumental role in utilizing the HECAT in one, in all the ways that the HECAT is meant to be used, from analyzing the current curriculum, to using it to develop a scope and sequence in the planning process. I would not have been able to do that had I not had the training at the Academy.”

**Barriers to Implementing Changes**

Faculty members interviewed gave widely varying responses to the question of whether barriers had been an issue in their attempts to implement changes in their school health teacher education programs. 13 codes were developed, and include:

1. lack of time to cover the content.
2. lack of personnel.
3. lack of administrative support.
4. lack of support from colleagues.
5. budget cuts or lack of funding.
6. decreasing enrollment.
7. cuts in the number of school health courses being offered.
8. change in participant’s job or professional role.
9. lack of follow-up after the Academy training, or uncertainty about how to proceed.
10. weak or unhealthy relationships with local school districts, resulting in an inability to gain entry to schools to provide professional development, or to place teacher candidates for clinical experiences.

11. change in program focus.

12. political resistance.

13. no barriers reported.

Frequencies for barriers are included in Table 8.

Table 8

Code Frequencies for Barriers to Implementing Changes

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The single greatest barrier to implementing program changes related to Academy training was lack of time to cover all of the content. Twenty faculty members stated that they do not have enough credit hours to train their teacher candidates in the use of all of the tools and resources that are available through the CDC. A significant proportion of the participants also stated that their institution or program has been unable to establish strong relationships with local school districts, and that there tends to be mistrust among school administrators when university faculty attempt to provide training or services to local K-12 schools. A large number also stated that they have dealt with no barriers at all in the process of implementing program changes.

It is also worth noting that resistance or simply a lack of support from administrators, colleagues, or politicians, although coded separately, becomes the next
most significant barrier when these frequencies are combined (n = 8). One participant stated, “We have not had consistent leadership in our program. In the last five years we have changed department heads or program directors four times. So the lack of leadership has been a problem because these changes need to come from the leader. If that person is not on board and supporting it, then it doesn’t happen.”

**Most Memorable Aspects of the IHE Academy**

Although the final two interview questions were similar, and responses to these last two questions were, in fact, the same for some of the participants, two distinct sets of codes still emerged, indicating that what was most memorable for participants was not necessarily the most useful, and vice versa. Some codes did, however, emerge in both sets. Codes describing what participants found to be most memorable about the Academy included:

1. networking with others in school health teacher education.
2. meeting leaders in the field.
3. the Multiple Intelligence lecture.
4. feelings of intimacy or closeness with others in the field.
5. discussing experiences and challenges with others in the field.
6. feeling less isolated, or less alone in the field.
7. the resources provided.
8. the NHES.
9. the modeling of teaching strategies.

Code frequencies can be found in Table 9.
Table 9

Code Frequencies for Most Memorable Aspects of the IHE Academy

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<th>Codes</th>
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For the greatest number of participants (n = 30), networking or making professional connections with others in school health teacher education was the most memorable part of the Academy. Significantly large numbers also cited the opportunity to share experiences and challenges (n = 21) and the resources that they took away from the Academy (n = 19) as the most memorable parts of the experience.

**Most Useful Aspects of the Academy**

When asked about the most useful or impactful part of their experience at the Academy, participant responses were more varied than they were when asked about the most memorable part of the experience. Twelve codes emerged, and included:

1. networking with others in school health teacher education.
2. the SHI.
3. the HECAT.
4. data from school-based surveillance systems, such as the youth risk behavior survey.
5. the opportunity to create action plans, or break-out sessions with colleagues that allowed time to plan.
6. everything (unable to pinpoint just one thing, as the entire experience was
impactful).

7. the connection between school health and academic improvement.
8. the NHES.
9. assessment strategies.
10. follow-up after the Academy had concluded.
11. the tour of the CDC.
12. the modeling of teaching strategies.

Frequencies for these codes are included in Table 10.

Table 10

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Networking, or making professional connections with others in the field, turned out to be not only the most memorable part of the Academy experience for the largest proportion of participants interviewed, but also the most impactful part of the Academy experience. One participant said, “Primarily, it’s about networking. Connecting with people who had some of the same questions. But some of those people had answers to the questions. So it was really more about informal break room, sitting outside, just chatting with each other. It showed us that the things we were doing were the right things, and helped us improve through the use of tools.”

Large proportions of participants interviewed also cited the HECAT, and the entire experience as useful or impactful. 11 of the participants interviewed stated that they could
not possibly pick just one part of the Academy that had been the most useful for them, as the entire training had been. Equal proportions of interviewees indicated that the SHI and the time provided to create action plans had been the most useful parts of the Academy.

**Results of Hypothesis Testing**

Results of analyses are discussed in relation to the hypotheses. For the purposes of this study, the majority is defined as a simple majority, or 51% or more of subjects.

**Hypothesis 1.** The majority of IHE Academy attendees will have implemented changes in their respective school health teacher preparation programs related to their IHE Academy training.

An overwhelming majority (89%) of IHE Academy attendees who responded to the survey have implemented changes in their school health teacher preparation programs. The mean number of program changes reported by participants was 3.58 (SD = 2.18). Thus, the null hypothesis was rejected.

**Hypothesis 2.** The majority of IHE Academy attendees will have made course modifications related to their IHE Academy training, such as changes in course objectives, course content, exam content, labs, field experiences, or assignments.

A large majority (87%) of IHE Academy attendees who responded to the survey made course modifications related to their Academy training. Thus, the null hypothesis is
Hypothesis 3. The majority of IHE Academy attendees have made curricular modifications related to their IHE Academy training, such as creation of new courses, or changes in number or type of required courses.

A minority (24%) of participants reported having made curricular changes to their school health teacher preparation programs. Thus, the null hypothesis was accepted.

Hypothesis 4. The majority of IHE Academy attendees have trained a minimum of ten pre-service school health teachers in the use of school health tools, assessments, and/or resources since their IHE Academy training.

A majority (81%) of IHE Academy attendees work in school health teacher preparation programs that have graduated at least ten school health teacher candidates in the five years since their Academy training. Of that 81%, only 8% (n = 8) reported making no changes related to the Academy training. Therefore, a majority (73%) of IHE Academy attendees have trained at least ten school health teacher candidates in the use of school health tools, assessments, and/or resources since their IHE Academy training. Thus, the null hypothesis is rejected.

Hypothesis 5. The majority of IHE Academy attendees have participated in outreach or have provided professional development to others based on their IHE Academy training.
A majority (58%) of IHE Academy attendees have participated in outreach based on their Academy training. Thus, the null hypothesis is rejected.

**Hypothesis 6.** The majority of IHE Academy attendees will have perceived a significant increase in confidence in their ability to teach school health education courses as a result of their IHE Academy training.

A majority (89%) of IHE Academy respondents reported a moderate to huge increase in confidence in their ability to teach school health teacher preparation coursework as a result of program changes related to their IHE Academy training. Thus, the null hypothesis is rejected.

**Hypothesis 7.** The number of implemented program changes related to IHE Academy training will not vary by participants’ level of perceived improvement in confidence to teach school health teacher education coursework.

A Pearson correlation ($r = .151, \alpha = .05$) was used to determine whether the number of implemented program changes related to IHE Academy training varied by the participants' level of perceived improvement in confidence to teach school health teacher preparation coursework. Results indicated no relationship between perceived improvement in confidence to teach school health teacher education coursework and the number of program changes implemented. Thus the null hypothesis was accepted.

**Hypothesis 8.** The majority of IHE Academy attendees will have perceived significant
improvement in the job-related skills of their teacher candidates upon graduation as a result of program changes related to their IHE Academy training.

A majority (79%) of respondents reported a moderate to huge improvement in the job-related skill levels of their teacher candidates as a result of program changes related to their IHE Academy training. Thus the null hypothesis is rejected.

**Hypothesis 9.** The number of implemented program changes related to IHE Academy training will not vary by participants’ level of perceived improvement in teacher candidates’ job-related skills.

A Pearson correlation ($r = .170, \alpha = .05$) was used to determine whether the number of implemented program changes related to IHE Academy training varied by the participants' level of perceived improvement in teacher candidates' job-related skill levels. Results indicated no relationship between perceived improvement in teacher candidates' job-related skill levels and the number of program changes implemented. Thus the null hypothesis was accepted.

**Hypothesis 10.** The majority of IHE Academy attendees will have perceived significant improvement in the content knowledge of their teacher candidates upon graduation as a result of program changes related to their IHE Academy training.
A majority (78%) of respondents reported a moderate to huge improvement in teacher candidate content knowledge as a result of program changes related to their IHE Academy training. Thus the null hypothesis was rejected.

**Hypothesis 11.** The number of implemented program changes related to IHE Academy training will not vary by participants’ level of perceived improvement in teacher candidate content knowledge.

A Pearson correlation \( r = .204, \alpha = .05 \) was used to determine whether the number of implemented program changes related to IHE Academy training varied by the participants' level of perceived improvement in teacher candidate content knowledge. Results indicated a weak positive relationship between level of perceived improvement in teacher candidate content knowledge and the number of program changes implemented. Thus the null hypothesis was rejected.

**Hypothesis 12.** The majority of IHE Academy attendees will have perceived significant improvement in teacher candidate field placement performance as a result of program changes related to their IHE Academy training.

A majority (68%) of respondents reported a moderate to huge improvement in teacher candidate field placement performance as a result of implemented program changes related to their IHE Academy training. Thus the null hypothesis was rejected.

**Hypothesis 13.** The number of implemented program changes related to IHE Academy
training will not vary by participants’ level of perceived improvement in
teacher candidate field placement performance.

A Pearson correlation ($r = .153, \alpha = .05$) was used to determine whether the number
of implemented program changes related to IHE Academy training varied by the
participants' level of perceived improvement in teacher candidates' field placement
performance. Results indicated no significant relationship between level of perceived
improvement in teacher candidates' field placement performance and the number of
implemented program changes. Thus the null hypothesis was accepted.

**Hypothesis 14.** The majority of IHE Academy attendees will have perceived a

significant improvement in the utility of school health teacher

preparation coursework at their respective institutions as a result of

program changes related to their IHE Academy training.

A majority (83%) of respondents reported a moderate to huge improvement in the
utility of school health teacher preparation coursework at their respective institutions as a
result of program changes related to their IHE Academy training. Thus the null
hypothesis was rejected.

**Hypothesis 15.** The number of implemented program changes related to IHE Academy
training will not vary by participants’ level of perceived improvement in

the utility of school health teacher preparation coursework at their
A Pearson correlation ($r = .200, \alpha = .05$) was used to determine whether the number of implemented program changes related to IHE Academy training varied by the participants' level of perceived improvement in the utility of school health teacher preparation coursework at their respective institutions. Results indicated a weak positive relationship between level of perceived improvement in school health teacher preparation coursework and number of program changes implemented. Thus the null hypothesis was rejected.

**Hypothesis 16.** The majority of IHE Academy attendees will perceive at least one barrier to the implementation of program changes related to their IHE Academy training.

A majority (76%) of respondents reported at least one barrier to the implementation of program changes related to their IHE Academy training. Thus the null hypothesis was rejected.

**Summary**

This cross-sectional, mixed methods study sought to evaluate the impact of a professional development conference on school health teacher preparation programs nationwide. The conference was designed to train school health faculty members in the use of online tools and resources available through the CDC. Because the conference was intended to encourage school health faculty members to integrate more of the CDC tools and resources into their school health teacher preparation coursework, conference
sessions incorporated teaching methods that attendees could use with their students. An online survey was developed to ascertain how many of the tools and resources included in the conference had been integrated into each participant’s curriculum. The online survey also captured details about each participant’s institution and school health program. Additionally, the survey included a 5-item Likert-type set of scales intended to determine perceived benefits of the program for each participant. The online survey was followed up with a semi-structured phone interview, tailored for each participant based on his or her survey responses. The phone interview was designed to collect examples of how each CDC tool or resource had been integrated into participants’ programs, as well as examples of any perceived benefits they had reported. Additionally, the interview included a question about any barriers the participants had encountered in attempting to integrate CDC tools and resources into their school health curricula, and questions about which parts of the conference had been the most memorable and the most impactful for participants.

Population Selection and Instrument Development

The population of interest included all IHE Academy attendees who had been involved in school health teacher preparation since their attendance. A total of 151 individuals were eligible to participate. More than two thirds (68%) completed the online survey, and 54 participants (36%) completed the follow-up phone interview. Potential reasons for non-participation included lack of time due to other professional obligations, and ambivalence regarding the outcome of the program evaluation due to negative experiences at the conference.

Evaluation stakeholders were involved in the establishment of face and content
validity for the online survey and the interview guide prior to data collection. Stability reliability for the online survey was established using test retest with members of the target population who were ineligible to participate due to their involvement with the planning or implementation of the program evaluation, or of the conference itself. Following data collection, consistency reliability for the perceived benefits scale was established using Cronbach’s alpha. Following the completion of qualitative data collection, a random sample of 15% of the interview transcripts (n=8) was submitted to an iter-rater to be independently coded. The level of agreement for inter-rater codes was found to exceed the generally accepted threshold of 75% (Hartmann, 1977).

Key Findings Regarding the Impact of the IHE Academy on School Health Teacher Preparation

A majority (87%) of IHE Academy attendees who participated in the online survey reported having made course modifications to integrate at least one tool or resource included in their IHE Academy training. Through follow-up interviews, it was discovered that this proportion is actually slightly greater (89%), which suggests that the use of a mixed methods study was beneficial with regards to more accurately capturing details about the changes to participants' school health teacher preparation programs that might have been missed had data collection been purely quantitative. A majority (58%) of participants also reported having participated in outreach to train others in the use of school health tools and resources, such as K-12 health educators and other school health faculty members. Additionally, it was found that a majority (81%) of participants have trained at least 10 school health teacher candidates in the use of the school health tools
and resources since their Academy attendance, and a significant proportion (20%) have trained 50 or more.

By far, the most commonly reported method of integrating Academy content into school health teacher education was the devotion of lecture or discussion time to the content. It appears that most faculty members prefer to use direct instruction to introduce a new tool or resource, and while some faculty members will stop at direct instruction and consider the topic “covered,” others will use additional strategies in an attempt to ensure higher comprehension and retention of the information. The second most common strategy for integrating Academy content is the use of an assignment or other form of assessment to measure students’ abilities to utilize a tool or resource, followed by the use of an in-class activity. Some faculty members have adapted learning activities used at the Academy to fit the needs of their own students. The most popular of these among respondents was the activity used to teach the Characteristics of Effective Health Curricula, which involved the use of a “sticky wall” and required participants to match different teaching practices with the Characteristics they supported. Not many faculty members mentioned giving students documents or hard copies of the CDC tools and resources, which is not surprising given the popularity of technology in today’s classrooms. What is surprising, however, is that fairly low numbers of faculty members mentioned showing students how to access the tools and resources online. A possible explanation for this could be that many faculty members who were interviewed simply assumed it went without saying that they show students the online tool or resource when they discuss it with students or provide direct instruction.
Conclusions

Accepted Hypotheses

Based on the results of this study, the following hypotheses were supported:

1. The majority of IHE Academy attendees will have implemented changes in their respective school health teacher preparation programs related to their IHE Academy training.

2. The majority of IHE Academy attendees will have made course modifications related to their IHE Academy training, such as changes in course objectives, course content, exam content, labs, field experiences, or assignments.

4. The majority of IHE Academy attendees have trained a minimum of 10 pre-service school health teachers in the use of school health tools, assessments, and/or resources since their IHE Academy training.

5. The majority of IHE Academy attendees have participated in outreach or have provided professional development to others based on their IHE Academy training.

6. The majority of IHE Academy attendees will have perceived a significant increase in confidence in their ability to teach school health education courses as a result of their IHE Academy training.

7. The number of implemented program changes related to IHE Academy training
will not vary by participants’ level of perceived improvement in confidence to teach
school health teacher education coursework.

8. The majority of IHE Academy attendees will have perceived significant
improvement in the job-related skills of their teacher candidates upon graduation as
a result of program changes related to their IHE Academy training.

9. The number of implemented program changes related to IHE Academy training
will not vary by participants’ level of perceived improvement in teacher candidates’
job-related skills.

10. The majority of IHE Academy attendees will have perceived significant
improvement in the content knowledge of their teacher candidates upon graduation
as a result of program changes related to their IHE Academy training.

12. The majority of IHE Academy attendees will have perceived significant
improvement in teacher candidate field placement performance as a result of
program changes related to their IHE Academy training.

13. The number of implemented program changes related to IHE Academy training
will not vary by participants’ level of perceived improvement in teacher candidate
field placement performance.
14. The majority of IHE Academy attendees will have perceived a significant improvement in the utility of school health teacher preparation coursework at their respective institutions as a result of program changes related to their IHE Academy training.

16. The majority of IHE Academy attendees will perceive at least one barrier to the implementation of program changes related to their IHE Academy training.

Discussion

Although some degree of on-site program evaluation had been completed immediately following each of the IHE Academies, these evaluations were based entirely on participant questionnaires, and primarily addressed the quality and relevance of the sessions included in the training. To date, this is the first program evaluation that has explored the impact of the IHE Academy on school health teacher preparation, and thus, the impact of the training on health education programs in K-12 schools. The results of this study are useful to the organizers of the IHE Academy, as they can be used to further improve the quality and effectiveness of the training.

The results of this program evaluation suggest that the impact of the IHE Academy has been far-reaching. Not only have IHE Academy participants been working across institutions all over the United States to integrate the CDC tools and resources into their school health teacher education coursework, but a majority have also indicated that they have completed at least one presentation about one or more of the CDC tools and resources at national, state, or regional conferences, thereby impacting other school
health faculty and K-12 health educators who have not had the opportunity to be trained at the IHE Academy. Through these conference presentations, IHE Academy attendees have reached an estimated 4,500 individuals. Additionally, almost half of IHE Academy attendees surveyed have indicated that they have provided professional development for in-service K-12 educators to train these individuals in the use of one or more of the CDC tools and resources, reaching another estimated 3,000 individuals.

Given the numbers of school health educators graduating from institutions where IHE Academy attendees are employed, it is estimated that over the course of the last five years, approximately 2,800 school health teacher candidates have been trained in the use of the CDC tools and resources by the participants who completed the survey. This means that the total number of school health teacher candidates trained could actually be significantly larger, as the participation rate for the survey was only 68% of the total number of school health faculty members trained.

A large majority of faculty members surveyed reported significant benefits as a result of program changes that were directly related to their IHE Academy training. The average respondent reported moderate to large improvements in four of the five categories, including improved teacher candidate skill level ($M = 3.24$, $SD = .935$), improved teacher candidate content knowledge ($M = 3.32$, $SD = .953$), improved utility of school health education coursework ($M = 3.64$, $SD = 1.05$), and improved faculty member self-confidence to teach school health teacher preparation courses ($M = 3.80$, $SD = 1.10$). The average respondent reported slightly smaller improvements in teacher candidate field placement performance ($M = 2.96$, $SD = 1.04$).

Although it seems reasonable to assume that perceived benefits of implementing
program changes would be positively correlated with higher rates of tool and resource integration, this assumption was found to be largely false. The Pearson correlations show only a weak positive relationship between the number of tools and resources integrated by faculty members and their perceived improvements in teacher candidate content knowledge ($r = .204, \alpha = .05$), and their perceived improvements in the utility of their school health coursework ($r = .200, \alpha = .05$). The remaining perceived benefits were not found to be significantly related to the number of tools and resources integrated into participants' school health programs. These included perceived improvements in teacher candidate skills levels ($r = .170, \alpha = .05$), perceived improvements in teacher candidate field placement performance ($r = .153, \alpha = .05$), and perceived improvements in faculty member confidence to teach school health education coursework ($r = .151, \alpha = .05$).

Only 13% of survey respondents ($n = 12$) reported having implemented no changes as a result of IHE Academy training. In the qualitative data collection phase, one participant reported that he had, in fact, made changes that he had not reported when completing the online survey. Interestingly, of the eleven participants who reported no changes implemented since their IHE Academy attendance, only one participant reported absolutely no perceived benefits. The remaining ten participants reported that although they had integrated none of the tools and resources included in IHE Academy training, their Academy attendance had still resulted in at least small improvements in teacher candidate skill levels, content knowledge, and field placement performance, as well as relevance of coursework and self-confidence in teaching school health teacher preparation coursework. Although this initially seemed contradictory, those ten participants also reported at least a moderate improvement in their self-confidence in
teaching school health teacher preparation coursework. Therefore, it could be that these participants perceived other benefits as a result of their own improved self-confidence.

Although it is possible that greater perceived improvement in teacher candidate content knowledge and course utility could result in minor increases in CDC tool and resource integration, it is unlikely that perceived benefits significantly impact faculty members' likelihood to make course changes. It may be more likely that perceived barriers negatively impact faculty members' behavioral capability, self-efficacy, or motivation to make program changes. This is something that should be explored in the future, as it may be within the power of IHE Academy organizers to make changes that could help alleviate some of the barriers reported by attendees.

Recommendations

The following recommendations are based on the survey data, as well as participants’ interview responses. Some direct quotes have been included.

Only 10% of IHE Academy attendees who participated in this evaluation have had less than five years of experience as a school health teacher educator prior to their IHE Academy training. Although it is also important to train more seasoned veterans in the field to ensure that all school health teacher education programs are integrating the CDC tools and resources into their coursework, it is likely that younger, less experienced faculty members are in a better position to have an even greater impact on K-12 health education, as they will have more time to reach a greater number of future K-12 health educators. Several of the veteran faculty members who were trained at the Academy have already retired and are no longer active in the field. In the past, IHE Academy organizers have recruited school health education graduate students to attend, due to their plans to
work in school health teacher preparation in the future. Future IHE Academy initiatives should continue to attempt to target school health faculty earlier in their careers, including school health graduate students who plan to eventually work in teacher preparation, in order to see a larger return on investment.

Survey data also indicates that nearly 20% of the faculty members trained at the Academy are the sole full-time faculty within their school health teacher education programs. Given that the interview data suggests that networking opportunities are considered to be not only the most memorable aspect of the Academy experience, but also the most useful or impactful, it may be helpful to many of these isolated faculty to be not only encouraged, but required to participate in a professional online community of Academy attendees. Such an online community has been attempted in the past, but participation was purely voluntary. The online community was not successful, and was phased out. If participation rates were higher, this kind of online community could provide a forum for attendees to continue to network with one another, share ideas and challenges, and provide support to one another long after their Academy training has ended. Because lack of follow-up has been shown to be one of the most detrimental aspects of many professional development opportunities (Cormas & Barufaldi, 2011; Gulamhussein, 2013; Lauer et al., 2013; Odden et al., 2002), it may behoove program planners to mandate a certain amount of participation in an online community that could provide more organized, reliable follow-up for Academy attendees. This would facilitate sharing of potential solutions between Academy attendees who face some of the same barriers to implementing program changes to improve the quality of school health teacher preparation.
According to the qualitative data, one such barrier to change that was more common among interview participants than most others (with the exception of lack of time to cover the content) was a lack of access to K-12 schools. Nearly 20% of IHE Academy attendees interviewed stated that weak relationships with K-12 schools or a general sense of mistrust among K-12 administrators had been a significant barrier to making improvements in their school health teacher education programs, or to providing training and services to K-12 schools. Some participants explained that they had experienced difficulties in finding field placements for their students. This is obviously detrimental because teacher candidates depend on field experiences to prepare them for teaching in their future careers, and some faculty members expressed that they would like to use field experiences as a vehicle for helping teacher candidates gain hands-on experience with implementing the SHI and the HECAT. One participant made the following statement in a follow-up interview.

“I think the one thing we probably have run into, (…) in our state with the political stuff going on, it has taken away the ability for the University to work with K-12 programs because right now all the K-12 schools are having to adjust to the common core teaching standards. And so they’re spending all their time on that versus trying to get new curriculum, or working with us.”

Another participant made the following statement, referring to attempts to assist local schools by using the SHI to create an action plan to help improve the district’s Whole School, Whole Community, Whole Child.
“I couldn’t get them to buy into it for some reason. They thought I was using them as part of a research project and was planning to come up with some sort of proposal and make it public knowledge.”

On the same topic, another participant made the following statement.

“The thing that is probably most problematic is the resistance of school health personnel to be graded on the SHI. They worry that it will reflect poorly on their schools. I think there really needs to be some effort to get out and communicate that this is just a health assessment. I know that would really help. I know when my students go out into the schools they broach the subject by explaining in their introductory narrative that this is just a spot check. It is just for the benefit of the school, so they can identify things they are doing well that you can share with your community, and then highlight some areas where you might consider improvement.”

Several of the participants suggested that it may be helpful for the CDC or the American Cancer Society to reach out to K-12 school administrators and provide them with names of nearby institutions and affiliated IHE Academy trainees who could be of service to local K-12 districts. Another participant suggested that it may be helpful to provide training to IHE Academy attendees on how to better communicate with K-12 administrators, and possibly on how to train school health teacher candidates to more effectively approach administrators with ideas or suggestions for improving the health of
their schools. This participant made the following statement.

“So often I hear people say things like, ‘I’m just a PE teacher.’ And I think that’s a real problem when people don’t feel like they have enough authority as a professional to speak. I heard it over and over and over. (…) These people (K-12 educators) don’t know how to communicate. They’re not confident communicators.”

Training focused on improving communication skills could help empower school health faculty members and K-12 school health educators to intensify the impact of the IHE Academy. This kind of training could emphasize strategies for helping school administrators understand the purpose of utilizing tools such as the SHI and the HECAT, as well as the potential benefits to the school/district when areas for improvement are identified and addressed.

Future Research

1. It may be useful for a future study to assess how IHE Academy attendees' reported barriers to change may have impacted their likelihood of having implemented program changes related to their Academy training. In the event that the IHE Academy is offered in the future, this data could be useful to program planners and implementers as they make modifications to the training to improve the rate of adoption for program changes that integrate more of the CDC tools and resources into school health teacher preparation curricula.

2. If the IHE Academy is offered in the future, program evaluation should focus on any modifications made to the original IHE Academy training format and the impact of those
modifications on the attendees' likelihood of implementing program changes related to their training.

3. Additionally, future research could explore the effects of an online professional development community in improving adoption rates for program changes that focus on the integration of CDC tools and resources into school health teacher preparation curricula.

Conclusion

This study provides evidence to support the IHE Academy as an effective, sustainable, upstream approach to training K-12 health educators in the use of CDC tools and resources that have the potential to improve the quality of K-12 health education. Higher quality school health education programs could positively impact the health and wellbeing of school-age children and adolescents, which could, in turn, improve academic performance. As school health faculty members become increasingly familiar with the CDC tools and resources, and thus more likely to integrate those tools and resources into their school health teacher preparation curricula, the next challenge will lie in the elimination of barriers to integration, such as lack of support from administrators, detrimental public policy, and lack of buy-in from K-12 school leaders.
References


Gallimore, R., Ermeling, B. A., Saunders, W. M., & Goldenberg, C. (2009). Moving the learning of teaching closer to practice: Teacher education implications of school-


Resources, 46, 587-613.


Appendix A

Informed Consent Form

This informed consent form is for school health education faculty members who have attended an Institutes for Higher Education Academy and who are being invited to participate in research to evaluate the effectiveness of the program.

Principal Investigator: Dr. Joseph Dake
Co-Investigator: Amelia Huelskamp
Organization: The University of Toledo
Sponsor: The American Cancer Society
Project Title: Impact of the Institutes for Higher Education Academy in Improving the Quality of School Health Education.

This Informed Consent Form has two parts:
Information Sheet (to share information about the study with you)
Certificate of Consent (for signatures if you choose to participate)
You will be given a copy of the full Informed Consent Form.

Part I: Information Sheet

Introduction:
I am Amelia Huelskamp and I am a graduate student at the University of Toledo. I am conducting research to evaluate the effectiveness of the Institutes for Higher Education (IHE) Academy. Because you have participated in at least one IHE Academy, information about your experiences related to the IHE Academies is valuable to the project. I am inviting you to participate in this research. Before you decide whether you would like to participate, you can talk to anyone you feel comfortable talking with about this research, and you can take time to reflect on whether you would like to participate. If you have any questions about this research, or if questions arise after you have agreed to participate in the research process, I will be happy to answer them for you.

Purpose of the Research:
This research has been sponsored by the American Cancer Society (ACS). As a sponsor of the IHE Academy, the ACS is interested in the impact of the program on school health teacher preparation programs. This information will help determine whether the IHE Academy is a sustainable model for training school health educators in the use of the online tools and resources that are available through the Centers for Disease Control and Prevention (CDC). Information that you provide may also help the ACS understand what kinds of barriers keep school health education faculty members from expanding or modifying school health teacher preparation programs. This information could help the ACS determine how they might better support school health education faculty.

Type of Research Intervention:
This research will involve your participation in an online survey and a follow-up
Participant Selection:
You are being invited to take part in this research because your experiences since your participation in the IHE Academy can help the ACS determine the effectiveness of the IHE Academy, and how the IHE Academy might be improved to better support school health educators.

Voluntary Participation:
Your participation in this research is completely voluntary. It is your choice whether to participate. Your decision will be kept confidential.

Procedures:
If you agree to participate in this study, you will be asked to complete an online survey and a brief follow-up phone interview, both of which will be kept completely confidential. Before you begin your participation in the study, all survey questions and interview questions will be e-mailed to you so you can review them beforehand if you choose. Once you return this informed consent form with your electronic signature, you will be sent a link to the online survey, which you can complete at any time that is convenient for you. The survey will begin with questions that focus on details about your institution’s school health education program, such as your academic rank and years of experience, the number of faculty members in your program, number of students currently enrolled, required coursework, and courses that you teach. The online survey will then ask questions about which topics covered at the IHE Academy have been integrated into your institution’s program, and which course(s) cover those topics. The last section of the online survey will ask you to select a convenient day for a 20 minute follow-up interview to be conducted by phone. Your responses to the online survey will be completely confidential. Neither your name nor your e-mail address will be associated with your survey responses. The researcher will assign a random 3-digit code to each participant, and will use only the randomly assigned codes to identify survey responses. The researcher will store the key to the codes in a locked safe. If there are any questions in the online survey that you are not comfortable answering, you may choose to simply move on to the next question. You may also choose to end your participation in the online survey at any time by simply closing out of your browser window. If you do not click the “Submit” button at the end of the survey, data from your survey will not be stored, and you will not be asked to participate in the follow-up interview.

All interviews will be conducted by the researcher (Amelia Huelskamp). The researcher will review this Informed Consent Form with you and will answer any questions you might have before starting the interview. When you are ready, the interview will begin with questions about how IHE Academy topics have been integrated into specific courses mentioned in your survey responses. If none of the topics covered at the IHE Academy have been integrated into your institution’s school health education program, these questions will be skipped. Next, the interviewer will move on to questions about whether you have noticed any changes in the preparedness of your students or in your own
confidence levels as a result of your attendance at the Academy. The interview will conclude with questions about any barriers you may have encountered in attempting to integrate Academy topics, and about which parts of the Academy you found to be most useful or memorable.

You do not have to share any information that you are not comfortable sharing. If there are any questions you would prefer not to answer, you may simply move on to the next question. All of the information you share with the researcher will be kept strictly confidential. The entire interview will be recorded so that the researcher can transcribe and code the information, however, no one will be identified by name on the tape, and no one but the researcher will have access to the recordings. All recordings will be transcribed, and all transcribed interviews will be stored on a flash drive kept in a locked biometric safe that can only be opened with the researcher’s fingerprint. A temporary back-up file will be stored on a password protected computer, and once the evaluation report is complete, the back-up file will be erased. Voice recordings will also be destroyed following completion of the evaluation report. All interview recordings and transcripts will be identified using the same randomly assigned 3-digit code that was used to identify survey responses.

Duration:
This research will take place over 3 months (between February 28, 2015 and May 31, 2015). During this time, the researcher will send you a link to the online survey. The last section of the survey will ask you to select a date and time for your follow-up phone interview. Both the online survey and the follow-up interview should last approximately 20 minutes each.

Risks:
Because some of the questions included in the survey and the interview will ask you to discuss how you have or have not utilized the training provided by the IHE Academy, you may feel some concern that your name might be associated with the information you share with the researcher when the final results of the evaluation are reported to IHE Academy sponsors. However, in order to mitigate this risk, the researcher will not use any names or other identifying information when reporting the results of the program evaluation to IHE Academy sponsors. Protocol approved by the Institutional Review Board will be utilized to ensure that your information is kept strictly confidential. If you still feel uncomfortable with answering any question during the survey or interview, you may choose to skip the question. You will not be asked to explain why you have chosen not to answer any of the questions. You may choose to end the survey or the interview at any time if you feel too uncomfortable to continue.

Benefits:
Your participation in this research will have substantial benefits for the field of school health education. Although there will be no direct benefits for you as a participant, the information that you share can aid the IHE Academy sponsors in determining whether continued funding for the program is warranted. The information you provide may also help IHE Academy organizers to better meet the needs of school health educators both at
the university level and at the K-12 level.

**Reimbursements:**
You will not be provided an incentive for your participation in this research.

**Confidentiality:**
There are several safeguards in place to ensure that all of your identifying information, as well as any information that you share in your online survey responses and during your recorded interview, will be kept strictly confidential. The responses that you provide in the online survey, as well as information you share during the follow-up interview, will be identified using only a 3-digit code that the researcher will randomly assign to you. Only the researcher will have access to the name associated with each randomly assigned code, and the key linking names with codes will be stored in a locked file cabinet in office 1003c, located in the HSHS building on the University of Toledo’s main campus. Your follow-up interview will be recorded to ensure that none of the information you share is missed. Your recorded interview will be transcribed within one week following your interview date. Although no names or other identifying information will be mentioned or requested by the researcher during the interview, any identifying information that you volunteer will be omitted during the transcription process (the name of your institution, the names of any of your students or colleagues, the name of your city or state, etc.). Your transcribed interview will be stored on a flash drive that will be kept in a locked biometric safe that requires the researcher’s fingerprint to be opened. A back-up copy will be temporarily stored on the researcher’s personal password protected computer, but will be erased upon completion of the final report. Voice recordings will also be destroyed following completion of the final report. Following publication of the study results, all transcribed interviews will be destroyed.

**Sharing the Results:**
The results of this evaluation will be shared with others in the field as a publication in a peer-reviewed academic journal relevant to school health education. The results will also be e-mailed to all participants after the conclusion of the study.

**Right to Refuse or Withdraw:**
You do not have to take part in this research if you do not wish to do so. You may choose to end your participation at any time. You will be given an opportunity at the end of the interview to review your remarks, and you can ask to remove or modify portions if you do not agree with the notes, or if you feel your words did not accurately convey what you wanted to express.

**Who to Contact:**
If you have questions, you may ask them now or later. If you choose to ask questions later, you may contact Amelia Huelskamp at amelia.huelskamp@utoledo.edu. This research has been reviewed and approved by the Institutional Review Board (IRB) at the University of Toledo. If you would like to find out more about the IRB, contact them at

**Part II: Certificate of Consent**
I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study.

Printed Name of Participant:
______________________________________________________

Signature of Participant:
_________________________________________________________

Date: __________________
                   Day/month/year

Statement by the researcher taking consent:

I have shared the information sheet with the potential participant, and to the best of my ability made sure that the participant understands that the following will be done:

1. The potential participant will receive copies of the survey items and interview questions in advance so that he or she may review all questions prior to participation if he or she chooses.
2. The potential participant will be receive a link to the online survey, which may be completed at any time that is convenient for the participant.
3. A follow-up phone interview will be scheduled for a date and time that are convenient for the participant.
4. A 20 minute interview will be conducted on the agreed upon date and time.
5. The participant will receive a copy of the researcher’s interview notes and may request that additions, deletions, or alterations be made to the notes.
6. The interview will be recorded and transcribed by the researcher.
7. All information shared by the participant will be kept strictly confidential by the researcher.

I confirm that the participant was given an opportunity to ask questions about the study, and all the questions asked by the participant have been answered correctly and to the best of my ability. I confirm that the individual has not been coerced into giving consent, and the consent has been given freely and voluntarily.
A copy of this ICF has been provided to the participant.

Print Name of Researcher:
______________________________________________________

Signature of Researcher:
______________________________________________________

Date: __________________
                   Day/month/year
Appendix B
Interview Guide

This interview is designed to serve as a follow-up to your completed online survey, and will provide an opportunity to capture some of the details of your program and any changes you may have noticed in your students or in yourself since your attendance at the Academy.

1. In your survey, you indicated that you started covering the School Health Index in your program’s ____________________ course(s) as a result of your Academy attendance. Can you talk about how this topic has been incorporated into the course? (This question will be repeated for each of the Academy topics that the participant indicated had been integrated into the school health curriculum as a result of Academy training. Any topic listed in this guide that has not been integrated into the participant’s program should be skipped.)

2. In your survey, you indicated that you started covering the Characteristics of Effective School Health Curricula in your program’s ____________________ course(s) as a result of your Academy attendance. Can you talk about how this topic has been incorporated into the course?

3. In your survey, you indicated that you started covering the National Health Education Standards in your program’s ____________________ course(s) as a result of your Academy attendance. Can you talk about how this topic has been incorporated into the course?

4. In your survey, you indicated that you started covering Health Education Assessment in your program’s ____________________ course(s) as a result of your Academy attendance. Can you talk about how this topic has been incorporated into the course?

5. In your survey, you indicated that you started covering the Health Education
Curriculum Analysis Tool in your program’s ____________________ course(s) as a result of your Academy attendance. Can you talk about how this topic has been incorporated into the course?

6. In your survey, you indicated that you started covering the link between student health and academic achievement in your program’s ____________________ course(s) as a result of your Academy attendance. Can you talk about how this topic has been incorporated into the course?

7. In your survey, you indicated that you started covering school-based surveillance systems in your program’s ____________________ course(s) as a result of your Academy attendance. Can you talk about how this topic has been incorporated into the course?

8. Can you provide any examples of how the changes you have discussed with me have affected your students’ abilities or self-efficacy?

9. What changes if any, have you perceived in the quality or preparedness of your graduates as a result of program changes related to your Academy training?

10. In your survey, you indicated that your confidence in teaching school health teacher preparation courses has improved as a result of what you learned at the Institutes for Higher Education Academy. Can you provide any examples of how your confidence has improved?

11. Are there any other changes that have been made in your institution’s school health education program that we have not yet discussed?

12. What barriers, if any, have made it difficult or impossible to implement program changes related to your Academy training?
13. Looking back at your Academy training, what do you remember most?

14. Which part of your Academy training has been the most useful to you?

________________________________________________________________________

Thank you for agreeing to participate in this study. The information that you have shared will contribute to the further development of the Institutes for Higher Education Academy. Your experiences and your willingness to share are greatly appreciated.
Appendix C
Items Included in Qualtrics Online Survey Instrument

The following questions will help determine what kinds of changes have been made to your institution’s health education teacher preparation program as a result of your participation in at least one Institutes for Higher Education Academy, and about how many students have been impacted by those changes. All of your responses will be kept strictly confidential. Each survey will be identified using only a randomly assigned three-digit code, and only the researcher (Amelia Huelskamp) will have access to each participant’s code.

For each question, please select the response that most accurately describes you, your institution, or your institution’s school health education program.

1. About how many students attend your institution?
   _______0-4,999 _______5,000-9,999 _______10,000-14,999 _______15,000-19,999
   _______20,000+

2. How many years of experience do you have in teaching school health education courses at the university level?
   _______0-4 _______5-9 _______10-14 _______15-19 _______20-24 _______25+

3. What is your academic rank?
   _______Lecturer _______Assistant Professor _______Associate Professor _______Full Professor

4. Does your program offer a major or minor in school health education?
   _______Major _______Minor _______Both

5. How many credit hours do your students need to be eligible for licensure to teach school health education?

6. Is your health education teacher education program combined with physical education teacher education?
   _______Yes (Optional) _______Yes (Required) _______No

7. How many full-time faculty members teach courses in your institution’s school health education program?
   _______0 _______1 _______2 _______3 _______4 _______5+

8. How many students are currently enrolled in your program?
   _______Majors _______Minors

9. How many school health teacher candidates have graduated from your program in the last five years?
   _______0-9 _______10-19 _______20-29 _______30-39 _______40-49 _______50+
10. Which school health education courses do you teach? Please check all that apply.

____ Foundations ______ School Health Programs ______ Issues in School Health
____ Methods ______ Health Behavior ______ Human Sexuality
____ Measurement/Evaluation ______ Other (Please specify)______________________

11. What is the approximate percentage of your current college teaching load that is devoted to school health education courses?

____ 0% ______ 1-24% ______ 25-49% ______ 50-74% ______ 75-99% ______ 100%

12. Are you better able to network with school health education faculty at other universities as a result of your attendance at the Institutes for Higher Education Academy?

____ Yes ______ No

13. Have you presented anything at any national, state, regional, or local conferences related to your training at the Institutes for Higher Education Academy?

____ Yes ______ No  If yes, please indicate how many presentations____

14. Have you provided any in-service training or continuing education to others related to your training at the Institutes for Higher Education Academy?

____ Yes ______ No  If yes, please indicate how many trainings____

15. If you answered “yes” to Question 13 or Question 14, which tools or resources were included in your presentation(s) or in-service training(s)? Please check all that apply.

____ The School Health Index
____ Health Education Curriculum Analysis Tool
____ Characteristics of Effective Health Education Curricula
____ National Health Education Standards
____ Linking Student Health and Academic Achievement
____ Health Education Assessment
____ School-Based Surveillance Systems
____ Other (Please specify)_____________________________

16. If you answered “yes” to Question 13 or Question 14, about how many individuals did your presentation(s) or in-service training(s) reach?

____ 0-49 ______ 50-99 ______ 100-149 ______ 150-199 ______ 200+

17. Does your program cover the School Health Index?

____ Yes ______ No

a. If so, in which course(s) does your program cover the School Health Index?

___________________________________________________________________
b. Approximately how many minutes of class time are devoted to covering the School Health Index in this/these course(s)?
   ____0-29 ____30-59 ____60-89 ____90-119 ____120+

c. Was this topic covered in your program prior to your IHE Academy attendance?
   ____Yes       ____No

18. Does your program cover the Characteristics of Effective Health Education Curricula?
   ____Yes       ____No

   a. If so, in which course(s) does your program cover the Characteristics of Effective Health Education Curricula?

   ______________________________________________________

   b. Approximately how many minutes of class time are devoted to covering the Characteristics of Effective Health Education Curricula in this/these course(s)?
   ____0-29 ____30-59 ____60-89 ____90-119 ____120+

   c. Was this topic covered in your program prior to your IHE Academy attendance?
   ____Yes       ____No

19. Does your program cover the National Health Education Standards?
   ____Yes       ____No

   a. If so, in which course(s) does your program cover the National Health Education Standards?

   ______________________________________________________

   b. Approximately how many minutes of class time are devoted to covering the National Health Education Standards in this/these course(s)?
   ____0-29 ____30-59 ____60-89 ____90-119 ____120+

   c. Was this topic covered in your program prior to your IHE Academy attendance?
   ____Yes       ____No

20. Does your program cover Health Education Assessment?
   ____Yes       ____No

   a. If so, in which course(s) does your program cover Health Education Assessment?

   ______________________________________________________

   b. Approximately how many minutes of class time are devoted to covering Health Education Assessment in this/these course(s)?
   ____0-29 ____30-59 ____60-89 ____90-119 ____120+

   c. Was this topic covered in your program prior to your IHE Academy attendance?
   ____Yes       ____No
21. Does your program cover the Health Education Curriculum Analysis Tool?
   ____Yes  ____No
   
a. If so, in which course(s) does your program cover the Health Education Curriculum Analysis Tool?
   
   b. Approximately how many minutes of class time are devoted to covering the Health Education Curriculum Analysis Tool in this/these course(s)?
      ____0-29   ____30-59   ____60-89   ____90-119   ____120+
   
c. Was this topic covered in your program prior to your IHE Academy attendance?
      ____Yes  ____No

22. Does your program cover the link between student health and academic achievement?
   ____Yes  ____No
   
a. If so, in which course(s) does your program cover the link between student health and academic achievement?
   
   b. Approximately how many minutes of class time are devoted to covering the link between student health and academic achievement in this/these course(s)?
      ____0-29   ____30-59   ____60-89   ____90-119   ____120+
   
c. Was this topic covered in your program prior to your IHE Academy attendance?
      ____Yes  ____No

23. Does your program cover school-based surveillance systems?
   ____Yes  ____No
   
a. If so, in which course(s) does your program cover school-based surveillance systems?
   
   b. Approximately how many minutes of class time are devoted to covering school-based surveillance systems in this/these course(s)?
      ____0-29   ____30-59   ____60-89   ____90-119   ____120+
   
c. Was this topic covered in your program prior to your IHE Academy attendance?
      ____Yes  ____No

24. To what degree has the Institutes for Higher Education Academy improved the following areas in your institution’s school health education program? Use the scale below to indicate the level of improvement resulting from your training at the Institutes for Higher Education Academy, 0 being no improvement at all, and 10 being tremendous improvement.
A. Teacher candidates’ skill levels
_____ No improvement  _____ Small improvement  _____ Moderate improvement
_____ Large improvement  _____ Huge improvement

B. Teacher candidates’ content knowledge
_____ No improvement  _____ Small improvement  _____ Moderate improvement
_____ Large improvement  _____ Huge improvement

C. Teacher candidate performance in field placements
_____ No improvement  _____ Small improvement  _____ Moderate improvement
_____ Large improvement  _____ Huge improvement

D. Relevance or utility of health education teacher preparation coursework
_____ No improvement  _____ Small improvement  _____ Moderate improvement
_____ Large improvement  _____ Huge improvement

E. Your confidence in teaching school health teacher preparation courses
_____ No improvement  _____ Small improvement  _____ Moderate improvement
_____ Large improvement  _____ Huge improvement

25. Please rank the top three days of the week that would be most convenient to schedule your follow-up phone interview, with 1 being the most convenient, 2 the second most convenient, and 3 the third most convenient. Rank only your top three choices.
Monday ________
Tuesday ________
Wednesday __________
Thursday ________
Friday ________
Saturday ________
Sunday ________

26. Please provide a phone number that would be most convenient for the researcher to use when contacting you for a follow-up phone interview.
Appendix D
Comprehensive Literature Review

Continuing Professional Development

PD has long been utilized to add to teachers’ repertoires in an on-going quest to meet the demands of perpetually changing classroom contexts. PD allows educators to continue to keep abreast of best practices beyond graduation from teacher education programs, and can encompass everything from in-service training, to graduate coursework, to mentoring programs or professional learning communities. It is common for new teachers to feel that there are gaps in areas of their performance as they attempt to bridge the gap between pedagogical theory learned in college classrooms and the application of those theories in the field (Korthagen et al., 2005). Many educators who have recently graduated from teacher education programs report feeling ill-equipped to handle the challenges they face in supporting students from diverse backgrounds (Gretyak, Kosciw, & Boesen, 2013; Mahdi, Jervenston, Schrader, Nelson, & Ramos, 2014). Other early-career educators cite challenges in developing the skills to work with children and adolescents and effectively manage behavior, and also report feeling very professionally isolated in school cultures that are centered on more experienced veteran teachers (Kardos et al., 2001). Further compounding feelings of inadequacy and isolation, many educators in K-12 schools feel as though they have desperately limited resources upon which they can rely to further develop pedagogy and increase content knowledge (Kardos et al., 2001; Makopoulou & Armour, 2011; Schlager & Fusko, 2003). It is possible that for health educators, these issues could be intensified, as some schools may have only one health educator in the building. This could mean that participation in PD is particularly critical to the success of health educators, who may struggle to find
sufficient support from colleagues within their own schools or districts.

For faculty members in teacher education programs, consistent participation in PD is just as critical as it is for K-12 educators. For the faculty members who train pre-service teachers, PD is vital in keeping teacher preparation programs aligned with administrator and state department of education expectations for effectiveness. Teacher preparation coursework that is not well-aligned with the most recent research and innovations in education is unlikely to produce highly successful teacher candidates. Because many teacher educators have been employed outside of the K-12 sector for years, and many others were never employed in the K-12 sector before entering academia, they may be too isolated from the evolution of primary and secondary education to keep courses current without the benefit of PD.

**Issues in the Current State of Professional Development**

**Issues with One-shot Seminars**

PD in schools and universities has taken many forms, and definitive answers to questions about effectiveness are difficult to find. At its worst, PD can prove to be a waste of time. Unfortunately, there are significant challenges in separating effective PD programs from those that are a waste of time and resources because any program that is intensive enough to produce results is typically implemented and found to be successful in only one specific context (Guskey, 2000). Results cannot be generalized to other contexts without first being reproduced in other contexts. Guskey (2000) writes that because thorough and accurate evaluation of PD programs requires significant time and expertise, it is easy for those responsible for planning PD to make decisions based on
concerns about budget and convenience. “Seduced by dynamic presentations and jazzy technology, desperate school leaders jump onto education bandwagons, committing scarce resources to strategies and programs based more on wishes and promises than on solid evidence of effectiveness” (Guskey, 2014, p. 12).

The most immediately obvious purpose of PD is to help teachers and teacher educators develop and refine their pedagogy, but in today’s educational climate, high-stakes testing and increasingly stringent accountability measures have pushed the true purpose of PD to the forefront. Unfortunately, as Guskey indicates in his research, because it is difficult to pin down features of high-quality PD that will reliably improve student performance, PD planning and implementation efforts tend to be fairly haphazard (2014). Administrators may be tempted to make decisions about PD based on budget and convenience, rather than opting for more promising forms of PD that will require a greater investment of resources (Odden et al., 2002).

Many K-12 school districts currently rely primarily on inexpensive one-shot seminars to provide their teachers with PD, but this one-shot format has been found to be largely ineffective in changing teaching practices and improving student learning outcomes (Darling-Hammond, 2010; Gulamhussein, 2013; Guskey, 2000; Odden et al., 2002). Without first taking steps to ascertain the needs of students and teachers, PD can be (and often is) reduced to a guessing game (Guskey, 2014). PD is often thought of as a series of discrete, unrelated sessions, each focusing on a different skill, even though there is no evidence that this is an effective way of changing teaching practices (Petras, Jamil, & Mohamed, 2012). In one study, a survey asked teachers to rate the effectiveness of different forms of PD based on actual changes in their teaching practices. The survey
results found that respondents felt participation in numerous short-term PD sessions that focused on a wide variety of topics was not effective (Petras et al., 2012). In fact, only 2% of respondents felt that even one of their teaching practices had changed or improved as a result of participation in this type of PD.

Over 90% of American teachers report having participated in one-shot seminar-style PD sessions (Darling-Hammond, 2010). Because one-shot seminars are widely used, it would seem that they must have some effect on teachers’ practices, and thus, on the achievement of students. But short-term PD sessions that last only a few days, or even just a few hours have virtually no lasting impact on participants for several reasons, the most obvious of which is inadequate time to master the performance of a new skill. With some one-shot seminars lasting as little as an hour or two, it is unrealistic to expect teachers to master and incorporate into their teaching practices anything discussed during such a brief session (Koh, 2011). Further compounding the problematic brevity of one-shot seminars is the manner in which they are commonly conducted. Often when teachers participate in one-shot seminars, they are asked to work with people they have never before worked with, or perhaps never even met, and they are asked to experiment with unfamiliar tools or techniques. This can contribute to low levels of success due to the amount of time that must first be devoted to introductions and acclimation before teachers can move forward towards achieving PD outcomes (Schlager & Fusco, 2003).

Another issue with one-shot seminars is that they are likely to treat participants as passive listeners rather than active learners (Makopoulou & Armour, 2011), relying heavily on lecture or presentation formats to communicate large amounts of information in a small window of time. This seems ironic, given that a chief aim of PD is to
encourage more effective teaching practices. Truly effective PD utilizes the same high quality, differentiated instruction that it seeks to promote amongst participants (Cormas & Barufaldi, 2011). PD is less likely to be effective when it fails to account for different learning styles among teachers, focusing on lectures about how to teach, rather than focusing on the application of new knowledge, or providing opportunities for practicing new skills (Schlager & Fusco, 2003, Varela, 2012). Coincidentally, education students commonly have similar complaints regarding teacher preparation coursework, stating that teacher educators talk about how to teach, rather than showing students how to teach (Helterbran, n.d.). When teachers are not given opportunities to practice the strategies discussed in PD sessions or in teacher preparation courses, they are less likely to feel comfortable incorporating those strategies into the context of their own classrooms (Lauer et al., 2013; Schlager & Fusco, 2003). In one study that assessed the impact of a 9-month PD program on student learning outcomes, it was discovered that teacher confidence levels in the implementation of new teaching strategies experienced a significant dip in the middle of the academic year. Researchers believed that this mid-year decline was likely due to an awkward phase as participating teachers experimented with implementation and wrestled with challenges that arose as they made necessary adaptations to the teaching strategies learned in the initial PD sessions (Deal, T., Jenkins, Deal, L., & Byra, 2010).

Fortunately for the participants in the program under study, follow-up sessions gave teachers the opportunity to interact regularly with other group members and discuss the changes they were making in their classrooms. Sharing challenges and ideas for improvement allowed participants to work through their awkward phases together,
manage frustration levels, and enjoy higher levels of success. The results of the study indicated that the students of teachers who had not participated in the 9-month PD program scored significantly lower on health knowledge assessments than their counterparts in the treatment group. Without sufficient time and support to make new strategies successful in the daily practice of teaching, educators will be more likely to abandon desired behaviors before they have bridged the gap between theory and practice. And yet, PD sessions often lack any form of follow-up, failing to provide scaffolding and support for teachers as they attempt to incorporate new practices into their classrooms (Deal et al., 2010; Gulamhussein, 2013; Varela, 2012). Apparently, many PD facilitators and teacher educators simply assume that knowledge gained in PD sessions or in pedagogy courses will be immediately absorbed and flawlessly incorporated into teachers’ repertoires.

Additionally, there is some evidence that because teachers who consistently participate in short-term PD are forced into the role of passive listeners, these teachers may actually learn to be dependent on teaching innovations that are informed by the experiences of outside consultants and tailored for students in dissimilar contexts (Makopoulou & Armour, 2011, Varela, 2012). It seems likely that teachers who rely on pre-packaged solutions to meet challenges that arise in the unique climates of their own classrooms may experience high levels of frustration when those solutions fail to have the desired effects. Passive listening may actually stifle critical thought, reflection, and problem-solving skills in teachers. In the same vein, teachers are often pushed to participate in generalized, one-size-fits-all PD that has not been adapted for their specific content areas (Varela, 2012). Much like ignoring teachers’ unique learning styles,
forcing participation in PD that is not discipline-specific increases the likelihood that teachers will encounter issues crippling enough to shut down their implementation efforts. The literature strongly indicates that effective PD and pedagogy coursework should be discipline-specific (Cormas & Barufaldi, 2011; Darling-Hammond, 2010; Gallimore, Ermeling, Saunders, & Goldenberg, 2009; Goe, Biggers, & Croft, 2012; Lauer et al., 2013; Lin, 2014; Wilson, Floden, & Ferrini-Mundy, 2001).

**Failure to Begin with the Outcome in Mind**

Beyond the deleterious tendency of many schools to rely on a succession of unrelated one-shot seminars, there are other issues often encountered in the planning and implementation of PD that can adversely affect intended outcomes. One such issue is often seen in classrooms when teachers are introduced to new activities that are fun and engaging for students, but are never applied to real-world situations. A health educator who observes a colleague showing students how to use a heart rate monitor might notice that the students are enjoying the activity, and may wish to introduce his or her own students to that same skill. But if the value of this skill is never connected to the daily lives of the students, then they will see little reason to retain the new information. The health educator must ensure that the skill has immediate relevance for students. Perhaps students could use the heart rate monitors to determine the level of intensity of different types of exercise as they create their own fitness improvement plans. Or perhaps as students explore different types of relaxation techniques, they could be asked to use the heart rate monitors to determine which technique is most effective for them. In either case, students would have the chance to immediately use the new skill to benefit their own health.
Because teachers are people and were once students themselves, they learn and retain information and skills in the same ways as their students. Just like the students in the aforementioned example, teachers need to know what they will be expected to learn at the outset of a PD program, and they need to see the immediate relevance of that learning. Too often, PD programs fail to specify learning objectives, and fail to make learning immediately relevant to the challenges that teachers bring with them, focusing instead on processes or activities (Guskey, 2004). Aside from potentially rendering a PD session ineffective, this kind of mistake also sets an example for unfocused teaching, and completely contradicts many teacher education programs that now emphasize backwards design, a technique that bases all planned learning activities and assessments on specific and measurable learning objectives. Because it is impossible to connect activities and assessments to student learning outcomes without first identifying the lesson objectives, pre-service teachers are taught to first identify standards they wish to address, and then create objectives for student learning based on those standards. Only once these have been established can teachers turn their attention to learning activities and assessments that will advance the purpose of the lesson. In exactly the same fashion, PD should be planned by first collecting data to identify the needs of students and teachers, then creating objectives that meet the identified needs, and finally coordinating activities to advance the achievement of the objectives (Guskey, 2014; Hirsch, 2013; Lauer et al., 2013).

Unfocused, ad-hoc PD programs present an additional challenge that not only jeopardizes effectiveness, but also erodes teacher motivation to actively engage in PD and sustain efforts to implement desired behaviors. As previously mentioned, many PD
programs fail to differentiate instruction for individual teachers based on learning styles and content areas, but in addition to these issues, many PD planners and administrators also fail to seek teacher input when choosing topics to be addressed through PD. When administrators make uninformed decisions about what kinds of PD will be offered to faculty members, rather than assessing the needs of teachers and allowing them to play a role in the PD planning process, they lose a valuable opportunity to increase teacher buy-in and enthusiasm for changes in teaching practices (Goe et al., 2012; Makopoulou & Armour, 2011; Petras et al., 2012; Varella, 2012). Without taking necessary measures to earn buy-in from PD participants, administrators can inadvertently increase the chances that their teachers will be unlikely to commit scarce time and resources to proposed changes in their hectic daily schedules. Teachers who are given ownership of their PD, and are encouraged to contribute to planning efforts and decision-making are significantly more likely to see the value and the immediate relevance of proposed changes to their current practices (Goe et al., 2012) and may also be more likely to correlate higher student achievement with their own improved pedagogy, motivating them to continue to develop as educators (Gallimore et al., 2009).

In their 2009 study, Gallimore and associates found that a group of teachers within a school district, when given the freedom to analyze their own student data and identify challenges in their own classrooms, was able to share ideas and work cooperatively to find resources, plan and implement changes, and ultimately evaluate the effects of those changes on student performance. Gallimore and associates found that student performance did, in fact, improve in the schools that made use of this innovative, collaborative form of PD, while the performance of students in schools that chose to
participate in other approved models of PD remained relatively unchanged. In fact, intervention school scores on the Stanford 9 surpassed those of all six comparison schools. Gallimore and associates also suggested that much of the success in increasing student achievement in intervention schools could possibly be attributed to a shift in teacher attitudes, with one principal reporting that “It’s just the kind of climate at this school that we need – to try whatever. We need to do whatever we need to do to help these kids succeed” (Gallimore et al., 2009, p. 543). One teacher reported that “when you find out what’s working in one class, then you can try it in the other classroom, and so eventually everybody’s doing the same thing because it works” (Gallimore et al., 2009, p. 543). For the researchers, the opinions of these participants indicate that because faculty members were able to take ownership of their efforts and collaborate to solve their own problems, the culture of their school became more supportive of continuous improvement through consistent, long-term PD that produced positive results. The results of another study utilizing inquiry cycles similar to those used by Gallimore and associates mirrored these findings. Hunuk, Ince, & Tannehill (2012) stated that “students’ increased engagement and their positive response encouraged teachers to change their classroom practices, use new instructional methods and tools…and change their teaching culture” (p. 17).

As Gallimore and associates (2009) and Hunuk and associates (2012) suggest, the collective attitude of a school or university can prove to be either helpful or harmful to the success of PD. “If change involves renegotiating compromises that make a setting stable, resistance will arise because people prefer their existing, if not perfect, daily settings and their embedded practices” (Gallimore et al., 2009, p. 550). In other words,
even when they realize that their usual practices are not effective enough, people like the comfort of routines and may not be suggestible to making changes, even for the sake of improvement, unless the culture of a school is open to change and highly supportive of teachers as they work through the process. Other researchers agree that culture can have tremendous bearing on the success of PD, stating that multi-level, ecological approaches to PD are much more successful due to the support of colleagues, administrators, and policy-makers (Ferreira & Tillbury, 2007; Gallagher, Griffin, Ciuffetelli-Parker, Kitchen, & Figg, 2011; Guskey, 2004). The authors of one study stated, “A strong community can wield the power to enact policies or subvert them, foster change or resist it, spread innovation or impede it” (Schlager & Fusco, 2003, p. 211). For schools in which administrators and the community at large are either unable or unwilling to make adjustments to give faculty members the resources and feedback that they require to successfully implement new practices, PD is unlikely to produce any noticeable results (Bolt, 2012; Gallimore et al., 2009; Goe et al., 2012, Guskey, 2014; Hirsch, 2013).

Because much of the PD that schools currently provide for their teachers requires passive listening rather than hands-on learning, there are typically few opportunities for teachers in similar content areas to collaborate as part of job-alike teams, similar to those utilized in the study by Gallimore and colleagues, which found collaborative inquiry cycles to be significantly more effective in increasing student achievement than other approved models of PD used within the same district. Collaboration has been found by many researchers to be a crucial component of effective PD for educators (Bolt, 2012; Cormas & Barufaldi, 2011; Ferreira et al., 2007; Gallagher et al., 2011; Gallimore et al., 2009; Goe et al., 2012; Herbert & Rainford, 2014; Hunuk et al., 2013; Lunenberg &
Willemse, 2006). And yet, even in light of consistent findings in the current body of literature, it is clear that many schools and universities have still not committed to ongoing collaborative forms of PD, possibly due to the perception that adequate time and funds are not available to support a sustained program (Makapoulou & Armour, 2011; Miles et al., 2004; Odden et al., 2002). Other schools may balk at the idea of instituting communities of practice or peer coaching techniques due to a perceived lack of access to highly-qualified mentors and disproportionately large numbers of new, developing faculty members (Schlager & Fusco, 2003).

**Issues in Professional Development at the Post-Secondary Level**

It is becoming apparent that the culture surrounding PD can affect attitudes even at the post-secondary level. Because many university faculty members feel pressured to devote much of their time to research and publications, the amount of time that they are able to devote to developing their teaching practices can be adversely affected (Hickson & Wilson, 2009; Korthagen et al., 2005; Martinez, 2008). In fact, many universities placing high emphasis on research may be willing to overlook lower levels of accomplishment in teaching and learning, even when a lack of teaching expertise among faculty members results in lower student enrollment and retention (Drew & Klopper, 2014; Hickson & Wilson, 2009; Martinez, 2008). These problems can be particularly worrisome in the case of teacher educators, who are often expected to produce as many publications as faculty members in other departments, while also working to meet the highest expectations with regards to modeling innovative teaching strategies and setting the standard for best practices. Contributing further to a lack of support for quality teaching and pedagogy-related PD, universities often have few requirements for teacher
educator qualifications, such as experience in K-12 classrooms, or evidence of success in translating K-12 experience into effectiveness in working with adult learners (Korthagen et al., 2005). Korthagen and associates suggest that teacher educators are often simply assumed to be effective in teaching adult learners how to teach others, stating, “The fact that becoming a teacher educator is assumed to not be problematic, suggests that the work of teacher educators themselves is neither particularly specialized nor highly valued” (2005, p. 110). This is troublesome, because university leadership is unlikely to allocate resources to the development of skills that are considered neither specialized nor valuable.

At the university level, other issues can arise as a result of the devaluation of teaching excellence within an institution’s culture. In their 2014 study of how multiple measures of teaching and learning success might be collected and cross-referenced to guide the development of individualized PD plans for faculty members, Drew and Klopper wrote, “It was expressed that there was insufficient access to people with the appropriate education expertise to assist; a lack of capacity or interest to engage with further learning in Higher Education; a culture of closed classroom doors; a mistrust of how HR may use any performance data collected; and, a lack of ‘at-work’ programs aimed at assisting with incremental improvement to courses and teaching” (p. 353). The findings of this investigation suggest that without a major shift in the culture of some universities, faculty members may feel too isolated and distrustful to seek out constructive feedback and guidance from colleagues or supervisors. They may fear that any fault found with their teaching performance could result in reprimand, or could adversely affect their eligibility for promotion or tenure. It seems that some of the faculty
members who participated in the study may have even felt that asking colleagues to observe and provide feedback would be essentially useless due to a lack of teaching expertise amongst the faculty at large.

Additionally, much of the PD in which university faculty members already engage is informal, unplanned, and undocumented, occurring within the context of daily practice (Karagiorgi & Nicolaidou, 2013). In their 2013 study, Karagiorgi & Nicolaidou found that teacher educators reported participating frequently in informal types of PD, such as reading current literature or engaging in casual conversations with colleagues regarding teaching strategies. While it is true that teacher educators may be taking the initiative to participate in PD on an individual basis, Karagiorgi and Nicolaidou (2013) suggest that there appears to be a lack of participation in organized, interactive PD that would be more likely to encourage the kind of department-wide collaboration that one might see within a community of practice or other type of professional learning community. While placing the onus of PD participation on individual faculty members may seem preferable as it allows teacher educators to design their own PD journeys, it could actually serve to slow the adoption of innovation. One study stated that “Teachers who played important roles in the larger educational community were more likely to use constructivist and collaborative instructional strategies in their classrooms, while teachers who became less involved in collaborative activities with other colleagues were more likely to use direct instruction and individualized learning tasks” (Schlager & Fusco, 2003, p. 206). This finding seems in line with another study that found teachers who were more student-oriented tended to voluntarily choose to participate more often in PD opportunities, while teachers who utilized primarily direct instruction in their classrooms...
were less likely to voluntarily participate in PD (De Vries, Van de Grift, & Jansen, 2014).

A Lack of Trust

Additional difficulties arise from the culture of closed classroom doors that is pervasive not only in universities, but in some K-12 schools as well. The mistrust that Drew and Klopper (2014) found to be a barrier to collaboration in university settings can also hinder PD efforts in primary and secondary schools. One study found that teachers were hesitant to offer constructive criticism to one another due to tension and misunderstandings that had previously resulted from attempting to make helpful suggestions (Prestridge, 2009). In discussing how teacher evaluation can be used to inform PD planning, another study mentions that some teachers may feel threatened by criticism from administrators, and may misinterpret the intentions of principals or mentors who observe and provide constructive feedback (Goe et al., 2012). A culture of isolation resulting from a lack of trust between teachers and their administrators could have the potential to stagnate development as it stifles collaboration. Teachers who serve as leaders within teaching communities are more likely to use innovative teaching practices, while teachers who tend to isolate themselves are more likely to use teacher-centered direct instruction (Riel & Becker, 2000). A lack of trust between colleagues could jeopardize the success of a PD program.

Best Practices in Professional Development for Educators

Despite the lack of promise in quick, convenient, seminar-style PD, schools and universities should not discount the value of well-planned PD that features characteristics found to be reliably effective in current literature. High quality PD has been shown to
improve practice and raise student achievement (Darling-Hammond, 2010; Yoon, Duncan, Lee, Scarloss, & Shapley, 2007). Research indicates that it is possible to predict student achievement based on specific, observable teaching practices (Kane, Taylor, Tyler, & Wooten, 2011; Sartain, Stoelinga, & Brown, 2011). Thus, one can reasonably deduce that it is possible to consistently produce increases in student achievement through the identification and purposeful development of teacher behaviors that are correlated with student success. This suggests that although the results of one-shot seminars have been found to be generally disappointing, more effective forms of PD can and should continue to be utilized as a tool to target and build the behaviors most likely to positively impact student learning.

Researchers conducting an extensive review of the literature pertaining to PD and its effects on student achievement found that the clearest commonality between programs showing significant positive effects was total contact hours (Yoon et al., 2007). “The report finds that teachers who receive substantial professional development- an average of 49 hours in the nine studies- can boost their students’ achievement by about 21 percentile points” (Yoon et al., 2007, p. 1). Of the studies included, all but one provided follow-up support for participants, and the sole exception was a summer institute that provided more than 100 total contact hours for participating teachers. The study found that PD programs providing less than 14 contact hours showed no significant results in student achievement. This corroborates other research suggesting that while there is no prescribed format, nor any magic number of hours to schedule to guarantee a successful PD program, there is evidence that programs sustained over a longer period of time and programs that include follow-up sessions are more likely to have the desired effects
However, PD planners should avoid relying on time-intensive programs if strategies for improving teacher learning outcomes lack quality, as “doing ineffective things longer does not make them any better” (Guskey & Yoon, 2009).

That being said, there are specific components of PD programs that many researchers in the field agree are likely to produce results. Several studies state that by providing participants with demonstrations of desirable behaviors, opportunities for practice, group discussions, homework, and active learning tasks that require cognitive processing, PD planners can improve the chances that their participants absorb and implement new knowledge and skills (Goe et al., 2012; Gulamhussein, 2013; Hickson & Wilson, 2009; Lauer et al., 2013; Odden et al., 2002; Varela, 2012). Many of these strategies can be observed consistently in the classrooms of effective teachers. This suggests that when planning PD, administrators and school leaders should attempt to adhere to the same standards of quality teaching that they expect to see in the classrooms of their teaching staff (Cormas & Barufaldi, 2011). High quality PD should resemble high quality teaching. PD planners should follow the same backwards design that many teacher education programs currently utilize in methods courses by identifying goals for teacher learning, and coordinating learning activities that will advance the achievement of those goals. Base PD processes on intended learning outcomes, and assess those learning outcomes to determine the effectiveness of the session(s) (Guskey, 2014; Hirsch, 2013).

PD planners should also set aside adequate time for educators to collaborate. It may behoove PD planners to consider a long-term commitment to ongoing forms of PD that utilize inquiry cycles, peer mentoring programs, or other collaborative formats, as
there is significant evidence in the literature to support their use (Bolt, 2012; Cormas & Barufaldi, 2011; Ferreira, 2007; Gallagher et al., 2011; Gallimore et al., 2009; Goe et al., 2012; Herbert & Rainford, 2014; Hunuk et al., 2013; Lunenberg & Willemse, 2006; Schalger & Fusco, 2003). Giving educators time to share ideas encourages the adoption of innovation. When compared with other countries, teachers working in the United States spend approximately 300 more hours per year on instruction than their counterparts in many Asian and European countries, while simultaneously maintaining consistently lower high school graduation rates than the average for member countries of the Organization for Economic Cooperation and Development (OECD, 2013). While there could be a number of factors contributing to this disparity, one potential factor is the disproportionately small amount of time available to American teachers for joint planning and collaboration. There is evidence that teachers in high-achieving schools are more likely to collaborate with others when they plan and evaluate lesson materials than their counterparts in lower achieving schools (Gallimore et al., 2009). Collaboration can also have benefits for university programs. Collaboration within and between different departments has the power to transform the disjointed nature of many programs and increase the real world applications of skills and knowledge learned in the classroom (Korthagen et al., 2005).

There also seems to be agreement in the literature that it is critical to frame PD within the daily context of teachers’ classrooms by embedding PD into teachers’ existing job responsibilities (Odden et al., 2002). A lasting commitment to change requires ongoing PD that focuses on real world applications (Cormas & Barufaldi, 2011). One researcher summed up the major flaw in short-term, seminar-style PD when she wrote,
“The one-time workshop assumes the only challenge facing teachers is a lack of knowledge of effective teaching practices and when that knowledge gap is corrected, teachers will then be able to change” (Gulamhussein, 2013, p. 13). As Gulamhussein (2013) points out, educators need more than knowledge alone to implement new practices in their classrooms. The opportunity to practice a new skill in the classroom with real students is a vital step towards the adoption of that skill, but many PD programs fail to account for this. By supplementing new learning with classroom observations of skill implementation and constructive feedback, administrators and other school leaders can increase chances for educator success (Goe et al., 2012; Hirsch, 2013). Embedding PD within daily practice has the added benefit of automatically providing differentiated PD for educators working in a variety of content areas. There are very few teaching strategies that will be equally relevant to all teachers on a school’s faculty, so generic PD intended to reach the whole staff at once is unlikely to be even marginally successful (Gulamhussein, 2013; Varela, 2012). PD should be tailored for different content areas and different grade levels (Cormas & Barufaldi, 2011; Gallimore et al., 2009; Goe et al., 2012; Lauer et al., 2013; Lin, 2014). Avoiding a one-size-fits-all approach to PD is likely to help teachers see the relevance of new teaching strategies to the issues they are seeing in their own classrooms, thus increasing teacher buy-in.

Taking steps to increase faculty buy-in for PD efforts can improve the likelihood that PD will have its intended effect on teaching practices and student achievement. “Indeed, when teachers do not see success, they tend to abandon the practice and revert to business as usual” (Gulamhussein, 2013, p. 15). But by accounting for the results of accurate teacher performance evaluations when planning PD, and placing some of the
decision-making power in the hands of the teachers themselves, administrators could see a drastic improvement in teacher motivation to stick with new practices. When faculty members are given the opportunity to control the direction of their own PD, they become the chief stakeholders by taking ownership of the process. Faculty members who are included in evaluating their own performance, identifying their own areas of weakness, and selecting PD offerings that will help them improve in those areas tend to demonstrate greater buy-in for their PD plans and greater commitment to lasting change in pedagogy (Cormas & Barufaldi, 2011; Goe et al., 2012). Conducting needs assessments among staff members is a good first step in determining what kinds of PD offerings teachers might find relevant and useful (Drew & Klopper, 2014; Gallagher et al., 2011; Lauer et al., 2013; Smith & Bahr, 2014). In addition to formal needs assessment, basing topics for PD on data collected from teaching observations, teacher reflections, and student evaluations of teaching can be helpful in further tailoring PD to meet the challenges faced by individual staff members (Drew & Klopper, 2014; Gallagher et al., 2011; Goe et al., 2012; Hirsch, 2013). In other research, findings also indicate that PD buy-in increases for teachers who are able to see improvement in student learning outcomes as a direct result of changes in their own practices (Gallimore et al., 2009; Hunuk et al., 2012). But in order to see improvement, evaluations of student learning must be conducted prior to any PD programming, as well as after the conclusion of programming. Herein lays the major difficulty in identifying features of effective PD. The frequent failure of many PD facilitators to evaluate the success of their PD efforts makes it nearly impossible to ascertain what works.

Many PD programs are focused on quantity, rather than quality, as it is much
easier and more straightforward to assess how often PD is implemented, rather than assessing whether it works (Guskey, 2000). Assessing quality is a complex process, and dependent upon how quality is defined. Any PD program should ideally be assessed at five levels, including participant feedback, participant learning, organizational support and change, participant use of new knowledge and skills, and student learning outcomes (Guskey, 2000). Definitions of quality will depend on the outcomes a school hopes to achieve. Obviously, intensive and accurate evaluation of PD programs constitutes additional financial strain on school budgets. But without evidence for what works, schools are doomed to continue to waste significant resources on ineffective PD. “Only when gathering data on the effectiveness of professional development becomes a central focus in the planning process will the pool of valid and trustworthy evidence expand” (Guskey, 2009, p. 498). A good first step is to begin to base decisions regarding PD offerings on needs assessments (Drew & Klopper, 2014; Gallagher et al., 2011; Lauer et al., 2013; Smith & Bahr, 2014). In addition to formal needs assessment, base topics for PD sessions on data collected from teaching observations, teacher reflections, and student evaluations of teaching (Drew & Klopper, 2014; Gallagher et al., 2011; Goe et al., 2012; Hirsch, 2013).

Furthermore, the climate of a school and its community should not be ignored when planning PD. Change is not always welcome in some communities, but PD has higher chances for success when school and community stakeholders are supportive of improvement efforts. In particular, the value of administrative support should not be underestimated. Support should be not only logistical, but also attitudinal. Because high quality PD typically involves honest discussions about classroom challenges and
disappointments, evaluation of current performance, and feedback regarding areas for improvement, teachers need to feel that they can trust their administrators and PD facilitators (Drew & Klopper, 2014). “It is essential that principals ensure that evaluation of performance and resulting feedback are given in a climate of mutual respect and trust, which may require specific training” (Goe et al., 2012, p. 14). Mutual vulnerability and trust between PD participants and the facilitators of PD is critical to improving the authenticity and value of PD (Gallagher et al., 2011; Gallimore et al., 2009; Goe et al., 2012; Herbert & Rainford, 2014; Lunenberg & Willemse, 2006; Prestridge, 2009).

Making changes in the classroom requires a leap into unknown territory and without feelings of camaraderie between colleagues, and faith in the intentions of administrators, many educators will be unlikely to take that leap. Aside from trusting that the results of classroom observations and performance evaluations will not be used against them, educators also need leadership and support in building a climate of continuous improvement (Cormas & Barufaldi, 2011; Gallimore et al., 2009; Goe et al., 2012; Petras et al., 2012). PD only works when the school and community are willing to reallocate sufficient time, funds, and personnel to make change possible.

In addition to universal recommendations for educator PD, there is a special challenge facing higher education. Universities with research-centered professional norms may do well to reassess institutional priorities and make changes to demonstrate greater commitment to excellence in teaching by providing faculty members with resources and opportunities to develop teaching practices that will effectively improve student learning outcomes (Hickson & Wilson, 2009). Much of the informal PD in which university faculty members engage is isolated and undocumented, such as writing and
reading current literature (Karagiorgi & Nicolaidou, 2013). This type of informal PD may help faculty members stay current within their fields and produce more publications, but it is teacher-centered. There may be a significant void in student-centered PD that focuses on improving teaching practices. The findings of De Vries and associates (2014) suggest that teachers who are more willing to differentiate instruction and focus their teaching on discovery and self-directed learning also tend to be more open to innovative practices. This could indicate that by shifting some emphasis from teacher-centered, content-based PD to pedagogy-based PD that addresses more student-centered teaching practices, universities could begin to build faculties working in a culture of continuous improvement, striving to provide every student with an education of the highest quality.

**Sustainability of Professional Development Programs**

Although many schools and universities may feel that more time-intensive PD is not possible due to budget constraints, the literature suggests that most schools may be better equipped to invest in effective PD than they realize. Many districts don’t have an accurate picture of how much money is spent on PD because this spending is often lumped into larger categories that include other things, such as technology and instructional support (Odden et al., 2002). This could potentially make it seem that a school district is already spending far too much on PD efforts. Other schools tend to grossly underestimate current PD expenditures. In one study, researchers discovered that a school district had reported spending $460,000 on one year of educator PD, when the actual figure was nearly $8.9 million (Miles, Odden, Fermanich, & Archibald 2004). To determine whether funding for more intensive PD is sustainable, schools must first accurately track how much is already being spent on PD. Because inconsistent coding is
often the problem, schools should first create a cost framework that includes categories for all potential PD-related costs, such as faculty time, consulting, training and coaching, conference fees, travel expenses, materials, and facility fees (Odden et al., 2002). In 2003, most school districts reported spending between $1,400 and $7,000 annually per teacher for PD (Miles et al., 2004). While this is a wide spread, it appears that many school districts are already spending a great deal of money on PD. That being said, it is critical that school districts ensure that the PD being funded is highly effective. Although effective PD is typically more time-intensive and more expensive than one-time workshops, funds already being allocated to numerous ad hoc seminars can be reallocated to support consistently higher quality on-going PD that will produce measurable student benefits (Miles et al., 2004; Odden 2002).

In order to avoid large expenditures on PD that is not working for a school or university, it is advisable to pilot any new PD program before committing too many resources to its implementation. Any new program should be thoroughly evaluated to determine whether it has had any positive effects on student achievement before fully committing to it. “Comparing the progress of one group of educators engaged in the new approach with that of another, matched group of educators in similar teaching situations can yield important evidence on the likelihood of success” (Guskey & Yoon, 2009). Consider the desired outcomes of PD, and collect data to measure the achievement of those outcomes. If a program is not successfully producing results, make changes. This process is described in detail in one study that set out to measure the effects of a community of practice within a school district (Gallimore et al., 2009). When significant results were not obtained within the first two years of implementation, alterations were
made to the organization and management of the communities of practice, and with changes in place, student achievement significantly improved.

Administrators and university leaders should also consider the value of in-house talent when planning PD. Expertise does not always have to be obtained externally. In-house expertise can be just as beneficial to a faculty, if not more so (Gallimore et al., 2009). Many teachers, intervention specialists, and other education professionals have much to offer their colleagues in terms of PD. Exploring the wealth of talent available in-house can provide schools and universities with relatively inexpensive (and highly effective) PD opportunities (Gallimore, 2009; Goe, 2012; Petras et al., 2012). Many teachers already engage often in informal PD, including discussions about ideas for teaching strategies, classroom organization, and classroom management (Karagiorgi & Nikolaidou, 2013; Petras et al., 2012). In fact, there is evidence indicating that it may be more effective for PD to be facilitated in-house by faculty and staff who are familiar with the unique circumstances of a school, district, or community, rather than by an outsider who may come from dissimilar circumstances (Makopoulou & Armour, 2011). In-house talent can also offer other advantages in the successful implementation of PD. For example, teachers are more likely to trust and communicate openly with their own colleagues (Gallimore et al., 2009). In some cases, even when colleagues are sent off-campus to attend PD sessions and then return to present new information and skills to the rest of the staff, they may be marginalized, as what they have learned is no longer in sync with the attitudes and work norms of the larger group (Schlager & Fusco, 2003).

One form of relatively inexpensive PD that is aligned with best practices and is recommended by Learning Forward’s Professional Development Standards is the concept
of learning communities, sometimes known as communities of practice (Learning Forward, 2014b). Communities of practice formed within a school can apply the expertise of an entire team to the challenges facing teachers in the building through the use of inquiry cycles. Communities can be formed within specific content areas or grade levels to produce job-alike teams, and members can select a single issue or concern to address during each cycle. Additional concerns are not addressed until the first issue is resolved, pushing the team to implement innovative practices until success is achieved. “Once teachers begin to attribute student gains to their own efforts, inquiry and continuous improvement are recognized as useful, satisfying, and worth the changes in school settings and routines that they require of busy educators in challenging circumstances” (Gallimore et al., 2009, p.538). The largest expense in this format is teacher time, which can be addressed in a number of ways, such as instituting early release for students on one day per week in order to provide teachers with the collaboration time they need, or hiring substitutes to cover for teachers during their collaboration time (Gulamhussein, 2013). But however the cost of teacher time is accounted for, it is imperative that learning communities have an opportunity to meet consistently enough to affect student achievement. Learning communities engage in such a variety of tasks, including action research, data analysis, reflection, and evaluation, that meetings should ideally occur weekly or bi-weekly. Learning Forward (2014b) takes it a step farther, recommending that if learning communities are to be effective, they should ideally meet daily.

**School Health Resources**

The CDC offers several resources for school health educators, and health
education teacher educators should strongly consider familiarizing their pre-service teachers with the use of these tools. The School Health Index, School Health Profiles, the Health Education Curriculum Analysis Tool, the National Health Education Standards, and Characteristics of Effective Health Education Curricula are all available online, in addition to program evaluation tools, opportunities to register for training workshops, and links to a variety of resources for assorted youth health issues and their respective risk and protective factors. These tools and resources are of tremendous value to the field of school health education because they facilitate the teaching and learning process by assisting K-12 health educators in meeting the standards of the profession. They also provide research-based guidance in increasing the effectiveness of instruction. The tools and resources that are most vital to the work of school health educators have been described in the sections that follow. With training in the use of these tools and resources, whether through pre-service teacher preparation, or through in-service training, school health educators could potentially improve the quality of K-12 health education in the United States, thereby improving health and academic outcomes for America’s youth.

School Health Index

The School Health Index (SHI) provides schools with a user-friendly tool that enables a team to assess their school’s current health and safety policies and practices, identify and rank areas of weakness, and create a school improvement plan to efficiently and systematically address those areas (CDC, 2015d). To date, very few evaluations of the SHI have been conducted, and the two evaluations identified in the literature were both conducted prior to the CDC’s 2006 revisions (Pearlman, Dowling, Bayuk, Cullinen, & Thacher, 2005; Staten et al., 2005). Findings from both evaluations were relatively
consistent. Researchers recruited schools to participate in SHI implementation, and used a combination of observation data and interviews to identify barriers to SHI implementation, as well as features of the process that were instrumental to successful implementation. In both studies, each participating school used their SHI results to create improvement plans targeted at nutrition and physical activity policies and practices. Although the studies were conducted on opposite ends of the United States (Arizona and Rhode Island), the results from both studies indicate that some schools may encounter significant barriers to successful use of the SHI, particularly schools dealing with high staff turnover rates, low staff morale, budget crises and/or intense pressures to improve academic performance.

Funding was an issue for the school districts included in both studies, and while the SHI provides schools with a system for identifying low-cost or no-cost changes that can be made to improve the health of students, both studies found that community members were displeased with SHI team decisions to remove unhealthy foods and beverages from fundraisers and school vending machines, claiming that the schools could not afford to forfeit income from the sale of these items. This indicates that lack of community buy-in for healthy change was a barrier to successfully implementing improvement plans recommended by the SHI. In its current form, the SHI does recommend that SHI teams garner support from their school board and community prior to instituting any changes. However, teacher educators may want to consider emphasizing the importance of securing buy-in from community members and local media outlets when training education students to utilize the SHI. It may be helpful to have pre-service teachers use role plays to demonstrate how this might be accomplished.
Staten and associates (2005) suggest in their study that helping the local media to accurately depict the intent of new school policies may have increased community acceptance for healthy change. School health educators should be trained to establish and maintain reliable media contacts.

Both Staten and associates (2005) and Pearlman and associates (2005) also found high rates of staff turnover to be a barrier to successful long-term changes. As original members of established SHI teams left their schools, they left behind gaps in staff familiarity with recently instituted policy changes. In some cases, principals moved on to other schools and policy changes that they had instituted before leaving were promptly overturned by their successors, causing a frustrating reversal of progress (Staten et al., 2005). Although one original member of the SHI team remained on staff in the wake of this leadership change, researchers found through interviews that the remaining team member was uncomfortable with attempting to single-handedly advocate for reinstatement of the overturned policy. Staff turnover is likely to be an issue in many of the urban schools that might benefit most from utilization of the SHI, so it may be helpful for the CDC to consider adding tips for the maintenance of institutional memory in schools that see many staffing changes from year to year.

For the schools included in both of these studies, pressures to improve student test scores were tremendous, resulting in a lack of time for faculty to devote to SHI team participation. School principals who participated in these studies seemed to feel that student achievement was a higher priority than facilitating SHI implementation and healthy change, despite a growing body of evidence that suggests improved student health outcomes can be a critical factor in improving test scores (Basch, 2011; Caldwell,
Sewell, Parks, & Toldson, 2009). For schools that were successful in implementing their action plans, Pearlman et al. found that school principals were key members of SHI teams, providing crucial support to change. Additionally, SHI teams in both studies came to the conclusion that larger numbers of team members could actually be detrimental, as attendance seemed to become less consistent when group size increased. In one study, the largest SHI team actually implemented the fewest strategies during the action phase (Pearlman et al., 2005). To promote flexibility, the CDC does not specify ideal numbers for SHI teams. However, it may be beneficial to note in the Instructions section that smaller team sizes can actually promote greater accountability and more reliable meeting attendance. The SHI Instructions already state the importance of inviting school administrators to participate as part of the SHI team, as well as ensuring that administrators are on board with SHI efforts, but it may be helpful to further emphasize the importance of securing administrator buy-in prior to beginning the SHI, and to provide suggestions within the document for making the case for improved student health outcomes. One such suggestion may be to encourage schools to recruit an external coordinator through a local non-profit organization, as there is some evidence that an external coordinator may be a key player in helping school faculty successfully advocate for change (Pearlman et al., 2005; Staten et al., 2005). Health education teacher educators also have a responsibility, as stated in the standards for the profession, to teach their education students how to advocate for healthy change, and how to demonstrate to administrators that Whole School, Whole Community, Whole Childs can fit into a school’s culture and help achieve the school’s mission.

Additional issues that may warrant consideration include the lack of availability
of a Spanish version of the SHI. Many communities include potential members of SHI teams who speak only limited English, or are perhaps not fluent English readers. A Spanish version of the SHI could greatly increase the likelihood that these community members would provide their insights to the SHI process (Staten et al., 2005). Currently, the SHI does not address alcohol and drugs other than tobacco. While the SHI includes information about why the CDC has chosen to address the health topics that are currently included, alcohol is a significant problem for many adolescents, with the potential to contribute to chronic health problems later in life. It seems logical to address alcohol use in the SHI along with tobacco use, and it may be possible that the CDC does, in fact, have plans to do so in the future. Health issues related to alcohol use are already included in the CDC’s Health Education Curriculum Analysis Tool.

Health Education Curriculum Analysis Tool

Launched in 2008, the Health Education Curriculum Analysis Tool (HECAT) is a flexible framework that can be used to assess and revise a school’s current curriculum, or to rank different curricula that a school may be considering for purchase (CDC, 2015b). The tool includes highly detailed instructions, and can be modified to meet the needs and unique circumstances of any community. It includes special sections for assessing not only the depth and breadth of standards-based content and skills, but also aspects of a curriculum that many communities would likely find critical to approval and adoption, such as affordability and odds of stakeholder acceptance. To ensure that curricula are in harmony with the culture and attitudes of a community, the CDC recommends that parents, local leaders of faith-based organizations, school board members, and other community stakeholders be included in the HECAT process, as well as in the decision-
making process following HECAT completion. The CDC also recommends the inclusion of medical professionals, IHE faculty and other content experts, and any other outside personnel who might be able to ensure that the curricula being assessed are accurate, unbiased, functional, and comprehensive. Additionally, training workshops are available online to assist committees with implementation of the HECAT.

**School Health Profiles**

First implemented in 1996, the School Health Profiles Survey provides a biennial snapshot of the current status of school health across states, territories, and tribal governments, and within very large, urban school districts (CDC, 2015e). As many of the questionnaire items remain consistent over time, results for some of the topics included can be compared with data from previous years to identify long-term and short-term changes in school health practices and policies. The 2012 School Health Profiles results indicated that while schools have made tremendous improvements in many areas of school health over the last 16 years, other areas have seen significant declines within this timeframe. For example, the median percentage of lead school health educators with at least 15 years of experience has declined from 52.8% to 34.9%, and within large, urban school districts, this drop has been even more precipitous. In participating urban districts, the median percentage of lead school health educators with at least 15 years of experience has dropped from 67% to 31%, and while School Health Profiles data does not provide conclusive evidence for why this might be happening, there is evidence in the literature indicating that urban districts serving large proportions of high-risk, minority students are struggling to attract highly qualified teachers (McKinney, Haberman, Stafford-Johnson, & Robinson, 2014). School Health Profiles data allows health educators, administrators,
and policy-makers to see and respond to these kinds of deteriorations in the quality of school health education.

The School Health Profiles tool also includes several features that make it a user-friendly resource for health educators. The tool suggests uses for data included in the report, such as identification of professional development needs, support for program funding, and comparisons of program quality. The comprehensive report provides data for specific health education topics covered across states, which allows a school or district to identify gaps or areas of weakness in its current health education scope and sequence. A table of contents provides quick and easy access to areas of interest. The comprehensive report is also summarized in a condensed version, and the results are available in PowerPoint form so they can be easily shared with others. Additionally, the tool provides state-specific fact sheets that can be distributed to parents, school board members, and other interested parties. These features provide support for health educators in garnering buy-in and funding for higher quality health education programming and policies.

Currently, the District of Columbia mandates participation in the School Health Profiles Survey, but the CDC relies entirely on voluntary participation from all other schools invited to complete the instrument. While participation rates are typically high, this tool could provide an even more complete picture of current school health practices and policies if larger numbers of school districts could be enticed to participate, if other districts, states, territories, and tribal governments would consider mandating participation, or if health education teacher educators could communicate the importance of participation among their pre-service teachers who may soon work in schools invited
to complete the survey.

**Characteristics of an Effective Health Education Curriculum**

Based on reviews of effective health education programs and the expertise of leaders in school health education, the CDC’s Characteristics of Effective Health Education Curricula provides school health educators with criteria that have been shown to improve the quality of K-12 health education (CDC, 2015a). The list includes 15 characteristics that emphasize knowledge, skills, attitudes, and social norms that support healthy behaviors. These components align closely with multiple health behavior theories that address the value of self-efficacy, attitudes, and external influences in the development of health behaviors (Theory of Reasoned Action, Theory of Planned Behavior, Social Cognitive Theory, Transtheoretical Model). Developmentally appropriate practices, inclusion, cultural competence, and collaboration are also emphasized, and these align with school health education accreditation standards. While it is not feasible for every health education lesson to include all 15 characteristics, health educators should ensure that each of their lessons includes multiple characteristics to improve the quality of their lesson delivery.
National Health Education Standards

The National Health Education Standards (NHES) provide a skill framework that can serve as the foundation of any health education curriculum, regardless of the policies and preferences unique to individual school districts (see figure 2). Because the NHES do not specify content areas or topics to be covered in health education curricula, the standards can be applied to any topic. For example, Standard 5 addresses decision-making skills, and while this standard could easily be applied to decisions regarding the
initiation of sexual activity, or decisions about practicing safer sex, the same standard can also be applied to decisions about resolving conflict or avoiding unintentional injuries. Each standard includes grade-specific performance indicators that aid health educators in identifying age-appropriate and developmentally-appropriate content and skills.

| Standard 1 | Students will comprehend concepts related to health promotion and disease prevention to enhance health. |
| Standard 2 | Students will analyze the influence of family, peers, culture, media, technology, and other factors on health behaviors. |
| Standard 3 | Students will demonstrate the ability to access valid information, products, and services to enhance health. |
| Standard 4 | Students will demonstrate the ability to use interpersonal communication skills to enhance health and avoid or reduce health risks. |
| Standard 5 | Students will demonstrate the ability to use decision-making skills to enhance health. |
| Standard 6 | Students will demonstrate the ability to use goal-setting skills to enhance health. |
| Standard 7 | Students will demonstrate the ability to practice health-enhancing behaviors and avoid or reduce health risks. |
| Standard 8 | Students will demonstrate the ability to advocate for personal, family, and community health. |

Institutes for Higher Education Academy

Sponsored by the CDC and the American Cancer Society (ACS), the IHE Academy is a two and a half day conference that offers PD to lead school health education faculty members from approximately 280 school health education programs across the nation. Figure 3 provides an overview of topics included in IHE Academy training. The conference is intended to familiarize faculty members with the tools and resources available through the CDC’s website, and to show them how these tools can be
incorporated into their school health education teacher preparation programs, thereby improving the quality of K-12 school health education, and encouraging the establishment of safe and healthy policies and practices in school settings. While school health education faculty in some IHE are already finding ways to incorporate real-world applications of tools such as the SHI and HECAT, there are still many programs nationwide that do not currently teach pre-service school health educators how to assess the needs of their students, how to assess their own practices, how to evaluate curricula and instructional materials, or how to create improvement plans that could raise the bar for school health education and thus, for student health outcomes (Davidson, Telljohann, Dake, & Price, 2010). For example, Davidson et al. found that only a third of IHE are teaching their pre-service health educators how to use the HECAT to analyze and improve curricula. This makes the IHE Academy a critical PD opportunity for lead faculty in IHE that offer school health education teacher preparation programs.

**Benefits of High Quality Teacher Education**

Evidence of the considerable logistical challenges and the cost involved in implementing effective PD suggests that in-service PD opportunities should be reserved for research-based cutting-edge practices that have been developed and consistently shown to be effective in the time that has elapsed since current staff members graduated from their teacher preparation programs. Alternatively, highly malleable pre-service school health educators can and should be trained to use current best practices prior to completing internships. As health education teacher preparation programs introduce new candidates into the job market, it may be fiscally and pedagogically prudent to explore the role of the teacher educator in improving the quality of K-12 health education. This
is the goal of the aforementioned HEA, and as there is consensus among many researchers regarding the strong influence of teacher preparation programs in producing effective educators (Helterbran, n.d.; Rice, 2003), HEA could have the potential to create lasting impact in K-12 health education.

**Characteristics of High Quality Teacher Preparation Programs**

Accrediting agencies, policy-makers, teacher education faculty, and other stakeholders have attempted repeatedly in recent years to find quantifiable evidence of the effectiveness of teacher preparation programs (Lasley, Siedentop, & Yinger, 2006; Wilson et al., 2001). Evidence of teacher education methods that produce higher quality educators for America’s K-12 schools could guide university faculty in improving the way they prepare teacher candidates. Unfortunately, research is somewhat sparse regarding best practices in teacher education programs, and the research that has been conducted has been of inconsistent quality, has focused primarily on program inputs rather than outputs, and has offered very little evidence of causal relationships (Boyd, Grossman, Lankford, Loeb, & Wyckoff, 2009; Wilson & Floden, 2003; Wilson et al., 2001). There are challenges in adequately describing highly variable teacher preparation programs across institutions, and additional challenges in finding evidence to indicate that particular characteristics or features of certain programs have the potential to produce higher quality teachers. In order to determine the quality of a teacher preparation program, it is necessary to determine how well that program prepares its candidates to be effective teachers in K-12 classrooms. But there are many different ways to attempt to capture teacher effectiveness, and none of the methods utilized thus far have been without significant disadvantages. Some studies have used gains in student test scores,
sometimes referred to as value-added measures (VAM) to determine teacher effectiveness, but there are limitations in using student test scores alone to determine teacher effectiveness (RAND, 2004). For example, many factors outside of a teacher’s control can affect his or her VAM, such as level of administrative support, parental involvement, students’ socio-economic status, or even the assignment of larger proportions of lower performing students to newer, less experienced teachers (Lasley et al., 2006; Wilson & Floden, 2003).

Furthermore, there are valuable features of teacher preparation programs that are not accounted for in any meaningful way when the average VAM of program graduates is used to determine program quality. For example, the quality of program resources and facilities, and the contributions of highly qualified faculty affect graduates’ average VAM too indirectly to be accurately judged based on this measure alone (Floden, 2012). Programs that offer lengthier field experiences supplemented with more intensive mentorship would probably be considered of higher quality by many teacher education students and their potential employers, but this feature could easily be overlooked in studies that focus exclusively on average VAM.

Additionally, Floden (2012) argues that because the higher availability of jobs in harder-to-staff schools attracts less experienced candidates who may not be able to secure positions in more desirable schools, the dynamics of the labor market have the potential to significantly impact judgments regarding teacher preparation program quality. Floden (2012) argues that because challenging conditions within hard-to-staff schools can adversely affect student achievement, therefore lowering teachers’ VAM, new teachers are typically compared against other teachers within the same school rather than being
compared against teachers in easier-to-staff schools. This technique helps to control for detrimental effects on student achievement that are beyond the control of teachers employed in harder-to-staff schools. However, this causes a leveling of the playing field across schools without accurately capturing variance in teacher effectiveness, thereby disguising differences in the quality of teacher preparation programs (Floden, 2012).

“How effective one teacher is relative to others in the school depends not only on that teacher’s skills and preparation, but the skills and preparation of the other teachers” (Boyd et al., 2009, p. 4). Because teachers working in harder-to-staff schools are likely to be less qualified and less experienced than those working in easier-to-staff schools (Darling-Hammond, 2000), it is not necessarily accurate to say that the teacher with the highest VAM in a harder-to-staff school is just as effective as the teacher with the highest VAM in an easier-to-staff school. The more desirable working conditions of an easier-to-staff school can reasonably be assumed to attract teaching candidates of the highest caliber. This makes VAM alone an unacceptable measure of teacher effectiveness.

Other researchers have suggested using observed teacher behavior in the classroom to determine effectiveness, but this raises other problems. First, simply observing and recording the behaviors of teachers from different preparation programs does not necessarily produce evidence of effectiveness, due to the effects of context. Practices that are effective in one community or school district are unlikely to produce exactly the same results in other, dissimilar school districts. Second, the use of observed teacher behaviors in determining effectiveness would require first proving causality between teacher behaviors and student outcomes (Boyd et al., 2009). Third, there are many different measures to be considered in the data collection process, and little agreement
regarding which measures are most appropriate (Wilson & Floden, 2003). Administrator or mentor evaluations, self-reports, and observations by an independent third party have all been considered, but significant biases are possible in each of these situations (Wilson et al., 2001).

In addition to these concerns, much of the current literature on teacher preparation programs focuses only on the performance of teacher education students or recent graduates from a single teacher preparation program. These kinds of studies are not capable of producing generalizable results, but unfortunately, much of the literature addressing best practices in teacher preparation involves only case studies written by teacher education faculty. Aside from the fact that this type of research design does not compare the effects of teacher preparation methods across a variety of programs, these kinds of studies are conducted by faculty members who have a vested interest in the reputation of their own institutions (Wilson et al., 2001; Wilson & Floden, 2003). Furthermore, these studies often have very small sample sizes, some with as few as one or two teacher candidates (Weisner & Salkeld, 2004; Wilson & Floden, 2003). Many other publications that address teacher preparation practices include literature reviews and reflective essays that are founded primarily on opinions and conjecture (Boyd et al., 2009; Bullock, 2012; Cuenca, 2010a, Cuenca, 2010b).

With all of that said, there is very little consensus across institutions about which teacher preparation methods produce the most effective teachers. There does, however, appear to be agreement across content areas that the more practical experience pre-service teachers are able to engage in, the better prepared they will be for the challenges of teaching in a real classroom (American Federation of Teachers [AFT], 2012, Boyd et
al., 2009). “As often as possible, teacher candidates should develop their pedagogical
skills and the ability to teach their subject matter within the K-12 setting” (AFT, 2012, p.
10). Across institutions, practical experience takes many different forms. In some
teacher preparation programs, field experiences may involve a series of placements at
different grade levels. For other programs, there may be a year-long internship in a
professional development school. Still other programs are experimenting with
opportunities for pre-service teachers to practice teaching in laboratory settings with their
peers, and according to one study, this may be just as effective as a field placement in a
real K-12 setting (Metcalf, Hammer, & Kahlich, 1996). But while few experts can agree
on the best features, timing, or duration of field experiences, there is agreement that there
is no substitute for sufficient practice in developing effective educators.

Other findings regarding field placements suggest that the type of school where pre-
service teachers are placed may make a big difference in their future effectiveness. Field
placements in urban, harder-to-staff schools have been shown to produce candidates who
are more likely to have the requisite knowledge and skills to teach effectively in similar
schools upon graduation (AFT, 2012; Wilson & Floden, 2003). There is some
disagreement on this, as one study found that pre-service teachers who spent their field
placements in more affluent, easier-to-staff schools had better retention and were more
likely to raise test scores in their first five years of teaching (Ronfeldt, 2012). However,
the Ronfeldt study is based strictly on the experiences of early-career teachers in New
York City schools, and the results may not be generalizable to other locations.
Additionally, field placements in easier-to-staff schools with few behavior management
issues have been shown to produce almost no discernible improvement in teacher
candidates’ classroom management skills (Wilson & Floden, 2003). Evidently, if pre-service teachers are not challenged to find workable solutions to behavior issues in their field placements, they will likely graduate with a critical element missing from their skill sets.

The culminating field experience is intended to sufficiently prepare pre-service teachers for the challenges of a real K-12 classroom, but early-career teachers are reporting that their teacher preparation programs did not sufficiently prepare them for real classrooms (AFT, 2012). “The research demonstrates that traditional field experiences are often disconnected from coursework, focused on a narrow range of teaching skills, and reinforce the status quo” (Wilson et al., 2001). This suggests a need for teacher preparation coursework that focuses on specific knowledge and skills that can be applied in field experiences and future teaching positions, as well as a need for strong mentorship during field experiences that will support teacher candidates in experimenting with innovative practices. People tend to teach using methods that are consistent with how they themselves have been taught in the past (Helterbran, n.d.). Faculty supervisors need to provide pre-service teachers with the support to resist pressures to conform to traditional methods, thereby breaking out of the status quo.

Another theme that appears consistently in research addressing teacher preparation across content areas is the disjointed nature of college coursework, which resembles a patchwork quilt more than it does a natural progression. Coursework should supply pre-service teachers with the content knowledge and pedagogy they will need to succeed in the field, but currently, coursework is described by the AFT as fragmented and disconnected from practice (2012). “Fewer than half of new teachers say their training
was very good, and more say that on-the-job learning or assistance from other teachers was more helpful than their formal training” (AFT, 2012, p. 7).

The literature seems to suggest that many teacher preparation programs would do well to consider reassessing what education students gain from current coursework, and how coursework might be realigned to be of greater benefit to pre-service teachers. Programs that can successfully bridge the gap between theory and practice will be more likely to produce well prepared, highly effective teachers (AFT, 2012). Bridging that gap should mean that coursework is tailored specifically to meet the needs of developing pre-service teachers. Content, learning tasks, and assessments should all address the teaching standards that pre-service teachers will be expected to meet. “Focusing more on preparation directly linked to practice can produce teachers who are more effective in their first year of teaching” (Boyd et al., 2009, p. 6). Additionally, teacher educators should make use of opportunities to model effective teaching practices, rather than simply lecturing about how to teach (Williams, Sullivan, & Kohn, 2012). When education students are able to see and experience effective teaching practices, rather than only hearing about them, it logically follows that they are better prepared to utilize those teaching practices.

The literature also suggests that courses focused on content knowledge should be reorganized to combine subject-specific content with pedagogy (Williams et al., 2012; Wilson et al., 2001; Smith et al., 2005). “It appears that prospective teachers need to reorganize their subject matter knowledge into knowledge about how to teach subject matter to diverse students” (Wilson et al., 2001, p. 15). In other words, it is not enough to have a firm grasp of the content that one will someday teach. Rather, education
students must have a firm grasp of how children and adolescents learn, master methods of teaching, and then apply those methods to subject-specific content.

A final recommendation for best practices in teacher education addresses the integration of technology into the classroom. As technology continues to become more pervasive in the lives of young people, it is imperative that teacher education students learn innovative methods of utilizing technology to engage students, and to enhance learning and assessment (AFT, 2012). Some research has shown favorable outcomes for coursework and field experiences that are supplemented with web-based multimedia, including video observations, online discussions, and web conferencing with expert teachers in the field (Liu, 2005). This kind of innovation could help teacher educators link coursework to real-world teaching before education students ever step into a field placement, while also emphasizing the value of technology in enhancing the teaching and learning process.

Potential Impact of the IHE Academy in Building High Quality School Health Education Programs

The IHE Academy was designed to help health education teacher education (HETE) faculty members further develop their knowledge and skills in supporting pre-service teachers by learning to utilize the tools and resources available to them through the CDC. The IHE Academy also addresses additional topics, including assessment, developmentally appropriate practices, and differentiated instruction, and the conference provides HETE faculty with a rare opportunity to network with other HETE faculty members from across the country. The PD that the IHE Academy provides to HETE
faculty members could be of tremendous value to their respective institutions because the knowledge and skills they build during the conference can aid faculty in acquiring or maintaining accreditation. Accredited teacher preparation programs have been shown to produce more teacher candidates with passing scores on licensing exams than non-accredited teacher preparation programs (Wilson & Floden, 2003). The National Council for Accreditation of Teacher Education (NCATE) uses the eight school health education standards endorsed by the American Association of Health Education (AAHE) for accreditation purposes. Unfortunately, research indicates that some teacher preparation programs do not appear to consistently address these standards (Smith et al., 2005).

For example, behavior management is often a major challenge in the classrooms of novice teachers, and yet, many pre-service teachers report learning very little about behavior management in their teacher preparation programs, perhaps due in part to the low value that some teacher educators place on these skills (Clement, 2002; Wadsworth, 1997). What is most troubling about this is the missed opportunity for teacher educators to model the standards that their education students will be expected to meet. AAHE School Health Education Standard 2 addresses needs assessment and states that school health educators should demonstrate the ability to collect data from their own students to guide the planning of instruction and to meet students’ most critical needs. But the failure of many university faculty members to address behavior management skills suggests that they do not recognize the need for it. If teacher education faculty do not take the time to assess the needs of their own teacher education students, then those students will be unlikely to recognize the value of this practice in their future classrooms. Teacher education students need to be taught effective pedagogical practices that align
with the AAHE standards not merely by discussing them, but by observing these practices in action. The resources that are available through the CDC website, such as the Youth Risk Behavior Surveillance System (YRBSS) and School Health Profiles (SHP), offer school health educators the information and tools to assess the needs of school-age populations. The IHE Academy provides an essential service by creating an opportunity for HETE faculty to learn how to integrate use of the YRBSS and SHP resources into their teacher preparation programs.

There are examples of how the IHE Academy can help teacher preparation programs meet all eight accreditation standards to produce higher quality school health educators. Standard 2 has been discussed, but there are IHE Academy sessions designed to address key elements from all of the remaining seven standards as well. There is a session that covers the NHES and demonstrates for HETE faculty how they can help pre-service teachers align school health curricula with the content and skills included in the NHES (Standards 1 and 3). The IHE Academy also covers the Characteristics of Effective Health Education Curricula, which further contributes to Standard 3 and the planning process. A session on practical applications of the HECAT helps HETE faculty learn to utilize the tool in teaching education students to evaluate educational resource materials for dissemination (Standard 7). A session that discusses the link between student health and academic achievement and familiarizes HETE faculty with sources of evidence to support that link gives HETE faculty tools that can be passed along to their education students, who will be expected to advocate for comprehensive school health education and Whole School, Whole Community, Whole Childs (Standard 8). Sessions that cover multiple intelligences, distance education, and developmentally appropriate
practices give HETE faculty the tools to model innovative implementation strategies for their pre-service teachers (Standard 4). HETE faculty who are familiar with the SHI can teach their education students to develop a plan for a Whole School, Whole Community, Whole Child, and eventually analyze and respond to factors that impact school health (Standards 6 and 8). And finally, a session that introduces HETE faculty to innovative and authentic forms of health education assessment could potentially transform how pre-service teachers learn to develop assessment plans and instruments, and align assessments with learning objectives (Standard 5).

Significant changes in K-12 health education over the last decade make it imperative for teacher educators to ensure that HETE programs stay up-to-date. HETE faculty who have been working for lengthy durations outside of K-12 settings may not be familiar with current best practices in the field, in spite of their expertise in academia. Thus, HETE faculty might benefit from collaborative relationships with experienced and highly effective school health educators in primary and secondary schools (Smith et al., 2005). It is possible that HETE faculty could drastically improve the quality of HETE programs by engaging in ongoing PD and by collaborating with K-12 teachers to keep abreast of best practices (Helterbran, n.d.; Smith et al., 2005). Research is needed to determine whether the IHE Academy is effective in facilitating more effective teaching practices within HETE programs, and whether those practices produce more effective K-12 school health educators.

**Sustainability of the Model**

A distinct advantage of providing PD to HETE faculty for the purpose of improving
the quality of K-12 school health educators is the sustainability of this strategy. The cost of the IHE Academy per attendee is $1,250. With that investment, attendees can potentially return to their IHEs and train other faculty members within their departments. HETE faculty members can then integrate the new content and skills into their existing curricula. This might be accomplished through modifications made to existing courses, through the creation of new courses, or by modifying curricula by requiring additional coursework for graduation. If a HETE program admits just ten new students per year, over the course of only five years, fifty future health education teachers would be trained in the use of tools and resources available through the CDC. If 100 lead faculty members from 100 different health education teacher preparation programs were trained at a single IHE Academy, this model would have the potential to reach 5,000 future school health educators in 5 years, based on the conservative figures used above. Costs to train 100 lead faculty members at a single IHE Academy would total approximately $125,000. However, it is important to compare the costs of in-service training for 5,000 school health educators who are already in the field. Obviously, the costs of training 5,000 people would be exponentially greater than the cost of reaching out to just 100 lead faculty members. Additionally, it is important to consider the possibility that practices learned through teacher preparation programs may be substantially more likely than the same practices learned through attendance at a conference to become a permanent component of an educator’s repertoire. Further research is needed in this area.
Appendix E
IRB Human Subjects Approval

To: Joseph Dake, Ph.D. and Amelia Catherine Huelskamp
Department of Rehabilitation Services

From: Walter Edinger, Ph.D., Chair
Kamala London Newton, Ph.D., Vice Chair
Mirella Pardee, Chair Designee
Patricia Case, Ph.D., Chair Designee

Signed: Kamala Newton

Date: 4-1-2015

Subject: IRB #200447
Protocol Title: Evaluation of the Impact of the Institutes for Higher Education Academy

On 03/13/15, the Protocol listed below was reviewed and approved by the Chair and Chair Designee of the University of Toledo (UT) Social Behavioral & Educational Institutional Review Board (IRB) via the expedited process. The Chair and Chair Designee noted that signed and dated consent is required prior to an individual taking part in this research. This action will be reported to the committee at its next scheduled meeting.

Items Reviewed:
- IRB Application Requesting Expedited Review
- Current IRB Approved Interview Guide (version date 03/13/15)
- Current IRB Approved Recruitment Email (version date 03/13/15)
- Current IRB Approved Consent Form(s) (version date 03/13/15)
- Current IRB Approved Participant Code Key (version date 03/13/15)
- Current IRB Approved Survey(s) (version date 03/13/15)

This protocol approval is in effect until the expiration date listed below, unless the IRB notifies you otherwise.

Only the most recent IRB approved Consent/Assent form(s) listed above may be used when enrolling participants into this research.

Approval Date: 03/13/15  Expiration Date: 03/12/16

Number of Subjects Approved: 200

Please read the following attachment detailing Principal Investigator responsibilities.